

- AN INTRODUCTION
TO THE STUDY OF PRICES

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TO
THE STUDY OF PRICES

BY
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AND
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PREFACE TO THE SECOND EDITION

THE first edition of this book was published more than twenty years ago as one of a series of textbooks designed for the use of classes organised by the Workers' Educational Association. While making no attempt to deal exhaustively with monetary theory or to compete with more ambitious histories of prices, it sought (i) to give the reader in as simple a way as possible a sufficient background of theory to enable him to understand the causes which determine the purchasing power of money, and (ii) to familiarise him with the actual course of prices since the Napoleonic wars. As its name implied, it was merely an introduction to a subject about which the public was beginning to ask questions because of an upward tendency in the cost of living, and of the industrial friction which resulted from it. The continuous demand for the book on the part of students has shown that the method fulfilled its purpose.

In the meantime, however, the shock of great events has produced price disturbances on an unprecedented scale, which have patently influenced the daily lives of millions, reduced many to penury and distress, and led to social and political upheaval. The problem of the price-level has, therefore, been forced into the very forefront of public controversy, and an exposition of the subject by reference to the slowly moving curves of the nineteenth century has been made to appear very much like *Hamlet* without the Prince of Denmark. Moreover, post-war price movements have been so violent and such radical innovations have been made in currency practice—innovations often too fantastic to be

dignified with the name of currency policy—that it is almost impossible to generalise about the changes of the last decade and a half or to study the long-period trend—if any—that underlies the short-period variations.

It was, therefore, a question whether any good purpose would be served by building on the old foundations or whether the subject should not be approached entirely afresh from the point of view of the present day. But to write an adequate history of prices since the war would be a laborious task which cannot be undertaken in odd moments snatched from other duties; and in any case, conditions have been so abnormal that the facts of the last decade are not in themselves good material on which to found an exposition of the causes underlying price changes.

On the other hand, an unambitious account of price movements and of monetary experience since the war, presented against the background of nineteenth-century experience, may prove of real value, by bringing our present problems into perspective and relating them to secular economic trends. This matter of perspective is forcibly illustrated by the main chart at the end of this book, which has been reproduced on the same scale as in the original edition, but brought up to date. The reader who retains in his mind a visual picture of this price curve will have acquired a permanent impression of the scale and tempo of the price problem with which the present-day world is faced.

It was, therefore, decided to revise the book and bring it up to date by additions conforming as far as possible to the original plan. On the theoretical side, a simple exposition has been given of the problems raised by inconvertible currencies and fluctuating exchanges (Chapter V), while historical chapters (Chapters X and XI) have been added on the model of the original book dealing with war and post-

war prices. The chapter of general conclusions (Chapter XII) has also been entirely recast. The scheme is obviously patch-work, the joints of which will be evident to the reader; but it is hoped that what the new edition loses in artistry it may gain in objectivity.

As the additional chapters are almost entirely the work of my colleague, Mr. Geoffrey Crowther, his name has been added to the title-page. Mr. Crowther has also revised and prepared the whole of the text and Appendices for the press. For the opinions expressed we assume joint responsibility.

W. T. L.

October 17, 1934

PREFACE TO THE THIRD EDITION

FOR this edition the statistical material in the Appendices has been brought up to the end of 1937 and a brief account of the years 1934–37, on similar lines to the other historical chapters, has been added to Chapter XI. No changes have been made to the main body of the book.

G. C.

July 10, 1938

CONTENTS

CHAPTER I

	PAGE
STATEMENT OF THE PROBLEM	1

CHAPTER II

ON THE GENERAL LEVEL OF PRICES

The phrase expresses the relation between the value of commodities and the article chosen as the standard of value—Prices may, therefore, vary (<i>a</i>) according to the value of the standard chosen, or (<i>b</i>) with changes in the value of a given standard over a period of years—Distinction between “relative” and “general” movements of prices—General price movements affect distribution between various classes of the community, the poorer classes on the whole benefiting from falling prices and the employing class from rising prices—But falling prices frequently cause a dislocation of trade and rising prices thus have a certain economic advantage—Analysis of income-receivers according to the effect produced on them by rising prices	5
---	---

CHAPTER III

THE WHOLESALE PRICE INDEX NUMBER FROM 1820 TO 1933

Price movements can best be measured by means of wholesale prices, though this method has several defects—Wholesale prices and general purchasing power—Features of the price curve—Long-term trends and short-term cycles—The boom of 1825 and subsequent fluctuations—General direction of the price curve can be summarised under eight periods, four before the war and four since 1914—These periods are also distinguishable in the index number curves of foreign countries—There is a general connection with movements of the gold production curve	17
--	----

CHAPTER IV

DIGRESSION ON MONETARY THEORY IN RELATION TO PRICES

PAGE

Circumstances of the pre-war and post-war epochs differ, and the working of the pre-war gold standard is first discussed—The relation between the volume and efficiency of the various kinds of currency on the one hand and the number of transactions to be performed by money on the other, illustrated by two examples—Classification of the factors entering into the equation of exchange—Changes in the price-level may originate either on the productive or on the monetary side—Illustration of the way in which an increase in gold operated to raise prices	28
---	----

CHAPTER V

INCONVERTIBLE CURRENCIES AND PRICES

The theory of money under conditions of inconvertibility differs from that set out in the last chapter only in emphasis—Inconvertibility is usually associated with abnormal conditions, especially in war time—The nature of inflation—Relations between the foreign exchanges and the price-level—Inconvertible currencies are not necessarily unstable—The post-war gold standard had many of the features of inconvertibility	40
---	----

CHAPTER VI

1820-1849. PRICES FALLING

Monetary considerations—Fall in the annual production of gold, especially from the New World—Slow expansion of credit currency until the end of the period—Production rapidly increased both at home and abroad—But the working-classes failed to benefit from falling prices (<i>a</i>) because of the general disorganisation of labour, and (<i>b</i>) because the price of food was kept up by the tariff	60
---	----

CHAPTER VII

1849-1874. PRICES RISING

The new gold from California and Australia at once found its way to England and caused a boom in trade, and prices	
--	--

continued high until the financial crisis of 1857—After that, the greater part of the new gold found its way to the East, but sufficient came to Europe to maintain prices—The period saw the growth of credit currency in old and new forms, but until 1870 the production of goods increased as fast as currency, and prices remained steady—Boom of 1870-74 marked by a further rise of prices—Opinion of Newmarch as to the real advantage of the new gold—Working-class conditions greatly improved through rise of wages and the fact that food rose less in price than other commodities—But profits rose faster than wages . . .	67
--	----

CHAPTER VIII

1874-1896. PRICES FALLING

Extent of the decline of prices, which was at first accompanied by acute industrial and agricultural depression—Catalogue of reasons alleged for the decline—The chief monetary change of the period was the demand for gold by Germany, the United States, and other countries which established gold currencies—Meanwhile new production fell to a minimum in 1884—Other forms of currency increased in England, and less rapidly in other countries—This development added to the available floating capital of the country, though not to the money in consumer's hands—The abundance of capital increased production and lowered prices—Production increased in this period through transport changes which brought new territory into touch with European markets, while metallurgical discoveries opened up new iron fields in Germany and United States which hastened the manufacturing development—Notes on the increased supply of leading commodities—Summary of monetary and productive influences—Distribution changed in favour of the working-classes through the fall of prices—Cheap bread and meat left a margin of wages for other commodities, and general well-being improved faster than ever before—Bimetallists proposed to increase currency by making silver standard money with gold—The change would also prevent the cut-throat competition of silver-using countries—The scheme, however, failed when Germany adopted gold—The competition of silver-using countries not the

main factor in depressing prices—The whole argument assumes the advantage of preventing a fall in prices . . .	81
--	----

CHAPTER IX

1896-1914. PRICES RISING

Turn in the curve coincident with increasing gold output—Absorption by new countries and by the United States and India—Increase in Great Britain's stock—Growth of credit currency at home and abroad—Increase in production has been slower than growth in currency in consumers' hands—Comparison of leading commodities as to increase in supply in response to the demand—Contrast between wheat and cotton—Importance of the United States in raising the price-level—Increase in American demand accentuated by trusts and the tariff—Wages, profits, etc., during the period . . .	103
--	-----

CHAPTER X

PRICES FROM 1914 TO 1922

The period can be divided into two sections, March 1920 being the turning-point	118
1. 1914-1920. PRICES RISING. The wartime rise of prices was due in the main to an expansion in the volume of money caused by the fiscal policy of the Government—Relation between changes in prices and in the volume of money—Wages and the standard of living—Hours of work—Price regulation—Analysis of price changes—Prices in foreign countries . . .	121
2. 1920-1922. PRICES FALLING. The boom of 1919-20—Causes of the collapse—Relative movements of wholesale prices, wages, and the cost of living—Wages and hours—Relative price changes—Prices in foreign countries—Foreign exchanges	141

CHAPTER XI

PRICES FROM 1922 TO 1937

The period is also divisible into two sections, the first of comparative stability and monetary reconstruction, the second of declining prices and industrial depression	155
--	-----

CONTENTS

xiii

PAGE

1. 1922-1929. STABLE PRICES. The post-war level of prices was about 50 per cent above the pre-war level—Economies in the use of gold—Restoration of the gold standard in Great Britain and in Europe—Reasons for the break-down of the post-war gold standard—Disparity in conditions between “sheltered” and “unsheltered” industries—Unemployment, wages, and the standard of living—Analysis of relative price movements 157
2. 1929-1932. PRICES FALLING. From 1928 the disequilibria underlying the post-war gold standard were uncovered—The crises of 1929 and 1931—The standard of living in Great Britain was comparatively little affected—Analysis of price movements 188
3. 1932-1937. PRICES RISING. The movement of recovery began in the middle of 1932—Prices did not regain all their previous fall—The special causes of recovery in 1932-37—Its development—Analysis of price movements 200

CHAPTER XII

GENERAL CONSIDERATIONS

- Conclusions on the problem in 1912—Two alternative methods of avoiding the harmful effects of price fluctuations—The change of circumstances since 1912 has not affected the two alternative lines of approach, but little progress has been made along either of them—The dilemma of stable exchanges or stable prices—A possible compromise—An international monetary standard implies an international economic system 210

APPENDIX A

- ON INDEX NUMBERS OF PRICES 233

APPENDIX B

- ON THE WORLD'S GOLD PRODUCTION 244

APPENDIX C

- ON MONETARY STATISTICS 251

APPENDIX D

	PAGE
STATISTICS OF PRODUCTION	265

APPENDIX E

STATISTICS ILLUSTRATING CHANGES IN WAGES AND IN THE STANDARD OF LIVING	271
INDEX	283

 LIST OF CHARTS

AVERAGE WHOLESALE PRICES AND WORLD'S GOLD PRODUCTION SINCE 1800	<i>End of Volume</i>
WHOLESALE PRICES AND THE COST OF LIVING, 1914-1937	<i>End of Volume</i>
THE MALDISTRIBUTION OF GOLD AND PRICES	Page 189
PRICE INDEX NUMBERS	<i>To face page</i> 240
PRICES OF FOOD AND MATERIALS	,, 242
MONEY WAGES, REAL WAGES, RETAIL PRICES, AND UNEMPLOYMENT	,, 273

CHAPTER I

STATEMENT OF THE PROBLEM

THE events of recent years have brought the effects of price changes sharply to the attention of the general public. A generation which has experienced the great rise in prices during the Great War and the ensuing sudden fall, which has witnessed the fantastic lengths to which currency depreciation proceeded in Central Europe, and has since suffered from the drastic fall of monetary values in the depression years from 1929 to 1933, has come to realise that the problem of prices is one which vitally affects the daily life of every inhabitant of the world.

In the century of comparative tranquillity which ended in 1914, changes in the general price-level were far less rapid and perceptible. For a large part of the century discussion of the subject was of academic, rather than of practical, interest. But there were occasional periods when the extent or the accelerated rate of a rise or fall of prices attracted the attention of the public. The general rise of prices between 1900 and 1914, for example, which was in progress when the first edition of this book was written, by increasing the cost of living, impinged upon the standard of living of the working-class and gave rise to considerable labour unrest. But it was not unnatural that these movements, even when they became the subject of popular discussion, were generally ascribed to the more obvious and immediate causes which were prominent at the moment. The rise during the twenty years before the war, for example, was believed by

Public interest in the problem of prices has increased since the war.

Many explanations usually offered to account for changes in prices

the public to be due to the speculations of capitalists and monopolists, to import duties or the shortage of rain, to the reduction in the hours of labour or the rise in wage rates; while in every country political parties in opposition attributed the rise to the actions of the parties in power. Even to-day, when the general principles of the subject are much more widely understood, there is still a tendency to turn to such special causes for the explanation of general changes in prices.

But the general cause can be found in the fluctuations of the purchasing power of money.

But these upward and downward movements of prices are too general to be satisfactorily accounted for by any combination of special causes operating in different countries; while their persistence for long periods of years requires us to assign a less temporary cause than the excessive production of this or that commodity. It is therefore necessary to take a broader view and seek for some common influence that will not only explain the general advance or decline of prices in the world markets, but will also account for prices not returning to their old level after the effect of these temporary causes has passed away. We have, in short, to account for the fact that the purchasing power of money seems to be subject to lasting changes. For the greater part of the period covered by this book, gold was the standard by which almost all the nations of the world measured the value of commodities; and it served, in fact, as a link between the price movements of all commercial countries. Changes in the purchasing power of money were therefore equivalent to changes in the value of gold, and if we can discover the general influences that caused changes in the value of gold, all the temporary and special influences that have been referred to will fall into their proper perspective.

But while it is easy to trace a connection between the failure of a wheat harvest and a rise in the price of wheat,

it is by no means easy to grasp the meaning of a general rise of prices, or to understand the connection between currency and the value of commodities. Everyone will agree that if people have more money in their pockets prices will tend to rise on account of the increased demand; but it is not obvious why an increase or decrease in the world's gold output should affect the amount of money in the pockets of the people—much less cause a permanent change in the level of prices.

For the greater part of the twenty years that have elapsed since the outbreak of war, currencies have not been linked to each other by a common adherence to gold. The pound sterling, for example, was on the gold standard for a little less than six and a half years out of the total, and even in that period special circumstances were operating to prevent the value of money from being as completely dependent upon the value of gold as in the pre-war era. Any explanation of the phenomena of prices must be able to account for the more rapid and extensive changes that have occurred since the war, as well as for the more gradual tendencies of the nineteenth century; and it cannot, therefore, be restricted to the factors which influence the value of gold.

The first problem, therefore, is to discover the general causes which determine the purchasing power of money, whether the currency is linked to gold or not. This question may conveniently be approached in two ways: on the one hand by a theoretical discussion of the forces that influence the value of money, and on the other by a historical account of the changes in the level of prices which have actually occurred in the last 110 years, and the causes that have produced them.

But there is another and equally important problem which arises from price fluctuations. Our investigation will have to cover the question whether a change in general prices affects

What
determines
the pur-
chasing
power of
money?

What are
the effects
of price
changes?

the material prosperity of particular classes, or in any way alters the distribution of the wealth of the community. This question may be studied in the same two-fold manner as the previous one—that is to say, by considering first in a quite general way how various income-receivers are likely to be affected by rising or falling prices, and then by ascertaining historically whether the facts bear out the conclusions arrived at on theoretical grounds.

These two problems, namely, the causes affecting the value of money, and the social effects of monetary changes, occupy the main portion of this book; the two threads running side by side throughout. Their theoretical aspects are discussed in Chapters II, IV, and V. (the last-named chapter being devoted to an examination of the special circumstances which were operative in the post-war period); and the historical side in Chapters III and VI to XI. The conclusions reached in this way on the effects of price fluctuations carry us some way towards forming an opinion as to whether falling, stationary, or rising prices are most desirable from the point of view of the community as a whole, and what are the economic difficulties that arise under each of these three conditions. In this connection certain further questions will suggest themselves, the most important being whether it is practicable to adjust the general price-level to conform to our wishes, and whether a gold standard or a system of independent inconvertible currencies would be the most satisfactory from this point of view. These larger questions are briefly alluded to in the concluding chapter.

CHAPTER II

ON THE GENERAL LEVEL OF PRICES

ECONOMIC values of all kinds are commonly expressed in Money is a everyday life by an amount of money which is generally convenient measure accepted as their equivalent value. Bus rides, loaves of bread, houses, a week's work, or a holiday on the Continent may thus all be brought into relation with one another by being expressed in terms of money. Even the total national income itself (*i.e.* the sum of the incomes of various members of the community¹) may be represented as equal to so many million pounds, dollars, or francs, the average annual income of the United Kingdom in the five years 1925 to 1929, for example, being approximately given by the figure £3,750,000,000. But the material prosperity of the country is not determined by the number of pounds which make up the total of its national income; material welfare depends rather upon the quantity of food and clothing, housing accommodation, facilities for travel, means of recreation, and social intercourse which the work and enterprise of the community is able to produce, and on the equitable distribution of such means of enjoyment. This "real income" of goods and services, which is distributed among the many members of the community according to the money income which they respectively have at their command, is conveniently valued at so many million pounds.

¹ Marshall defined the national income as "the net aggregate of commodities and capital, material and immaterial, including services produced annually by the labour of a country acting upon its natural resources".

But money values (or prices) vary according to the value of the standard chosen.

Before the war and again from 1925 to 1931, the pound was on the gold standard; that is to say, the value of a pound was the same as that of a certain fixed weight of gold, to wit, about $\frac{1}{4}$ ounce. If, however, an entirely different standard than gold had been adopted the figures would be different, though the "real income" would remain the same as before. If, for example, the currency were based upon platinum, and the value of the pound were fixed at that of $\frac{1}{4}$ ounce of platinum, a unit of currency would exchange for a much larger number of commodities than before, and whereas a gold pound in 1929 purchased only half a week's unskilled labour or a ton of coal, a platinum pound would have purchased, say, a whole week's labour or two tons of coal. On the other hand, if a cheaper material were used as standard, the figure of the national income would be a very much larger one than it now is. The same considerations apply to a currency whose value is not fixed in relation to that of any material. If the currency is relatively plentiful, many units of it will be needed to make purchases, and the national income, expressed in money, will be high. But if the currency is relatively scarce, the figures will be lower. In other words the relative height or lowness of the general level of prices measures the relative cheapness or dearness of each unit of the currency.

No standard, however, whether it consist of gold, platinum, silver, wheat, or cattle, or whether it obtains its monetary value solely from the authority of the State, is fixed in value, but varies from year to year and from decade to decade. Thus, gold in the Middle Ages was exceedingly scarce, and a large number of commodities could be exchanged for an ounce of it. An ounce of gold, for example, which exchanged in England in 1912 for nearly $2\frac{1}{2}$ quarters of wheat, exchanged in 1400 for about 10 quarters of wheat; that is to

say, it had fallen in 1912 to about $\frac{1}{4}$ of its former value. Prices of commodities and services had, in fact, quadrupled, because the standard by which the measurement is made had become more plentiful. If the relative value of gold had remained as high as it was in the Middle Ages, the total national income in 1912 would have been represented by 500 million pounds instead of 2000 million pounds, the average wage of unskilled labour would have been about 5s. a week, while the price of the quartern loaf would have been $1\frac{1}{4}$ d. Though the "real income" of goods and services might have been unchanged, its value in terms of pounds would have been less.

Thus it is seen that not only is the general level of prices altered by the substitution of one standard for another, but also that a change in prices may occur through a change in the value of the same standard over a period of years. In the case of gold, events affecting its supply and the demand for it are constantly causing variations in its value—as is the case with every other commodity in the world. But—when the currency is on the gold standard—the price of gold itself does not vary. For the condition of a gold standard currency is that the price of gold is fixed, and that the value (purchasing power) of a unit of currency varies with the value of the corresponding amount of gold. Similarly, in the case of an inconvertible paper currency, the value of money may change owing to alterations in the conditions of demand for it or supply of it. But this change in value cannot be represented by the change in any single price, for a "price of money" would be a contradiction in terms. A fall in the value of money—or of gold if it is used as money—means that it becomes less valuable in proportion to other things; more of it is exchanged for a given amount of other commodities, and prices rise. Similarly a fall in the prices of commodities means that money has become more valuable in relation to other things.

Price is thus the ratio between the value of money and the value of commodities.

While, therefore, the value of commodities is measured in terms of money, changes in the value of money must be measured by the upward and downward movement of prices in general. Such changes are spoken of as variations in the general level of prices, or as a rise or fall in the purchasing power of money. To use a mathematical phrase, prices are the ratio between the value of money and of other commodities and may be altered by a change either on the side of money or on the side of commodities.

The measurement of exchange value is, in this respect, unlike all other measurements, for in the case of value it is impossible to get a fixed basis, such as the yard-stick kept at Whitehall, which determines all lengths and distances in this country. The golden sovereign or, indeed, the paper £1 note is a definite physical quantity, but their *value* is a human estimate, which varies greatly in time and place.

Relative and general price movements distinguished.

It must, however, be understood that a change in the general level of prices does not necessarily mean, and in practice never does mean, that all prices change at the same rate; and even when the general level is unchanged, some commodities move up, and some move down. Thus, in a country whose population is beginning to consume wheaten instead of rye bread, the price of wheat will tend to rise and that of rye to fall. Relative movements of this kind are the indicator of the economic machine, and, so long as prices are not artificially manipulated, they indicate either a change in demand, calling for a transference of labour and capital from occupations in which prices are falling to those in which they are rising; or else that a change has occurred in the conditions of production. Such changes, due to the forces of demand and supply, must be carefully distinguished from the general price-level, which is dependent on causes affecting all commodities. Relative and general price changes may be

compared to wave and tidal movements respectively. In stormy weather the violence of the sea and the size of the waves may seem quite to obliterate the steady ebb and flow of the tide. Nevertheless, whether the waves be big or small, they fluctuate about a level which is always changing. So it is with prices. Relative changes are the waves on the surface of the general level of prices, the height of which depends on more permanent and general factors. It is these tidal movements with which the following chapters are mainly concerned, though, unlike the ocean, their ebb and flow is not uniform. Each tidal movement must, therefore, be discussed independently in the light of the new conditions which have from time to time arisen.

To return, then, to general price movements—if a change in the value of money caused an instantaneous effect and influenced all commodities and services at the same time and to the same extent, it would have no important social or economic effects, and would be of little interest to anybody. As a matter of fact, changes in the monetary standard do not work so easily and quickly, but involve a certain amount of economic disturbance. It is this fact which lends importance to changes in the general level of prices.

Economic
effect of
price
changes
on various
kinds of
income.

Everyone is interested in prices from the two distinct and opposite points of view of the receiver of income on the one hand and the buyer of commodities and services on the other. The market price that is being offered for labour, for professional services, for the use of land or capital, and for commodities affects the incomes of wage-receivers, professional men, rent and interest-receivers and merchants respectively, and each of these classes is best pleased when its price is highest. On the other hand, when it is a matter of spending income, everyone wishes to get as much as possible (both in quantity and quality) for his money, and

is therefore anxious that the price of the things he buys should be as low as possible.

If, therefore, the price of everything (labour, capital, commodities, etc.) were to rise at the same rate nobody would be any better or worse off, for what people gained as income-receivers they would lose as consumers. Similarly, if everything fell uniformly in price, the loss of income would be counterbalanced by the fall in the price of things purchased. But if incomes and prices vary irregularly, the man whose income rises while the prices of goods fall, or remain unchanged, will find his material position changed for the better; but if commodities rise faster than his income, he will find himself worse off than before.

General
presump-
tion that
rising
prices are
bad for
working-
classes.

Observation shows that there are in the community persons whose money incomes readily respond to changes in the price-level, and others whose incomes only change when the movement has been very severe or has continued for a long time. As between such classes a rise of prices will alter the distribution of the nation's annual product in favour of the former and to the disadvantage of the latter—a fall of prices having the reverse effect. Broadly speaking, this distinction applies as between rich and poor, for it generally happens that wages respond less promptly to a change in economic conditions than profits. In times of rising prices wages tend to rise less rapidly than profits or the price of commodities, while in times of falling prices they lag behind the general downward movement. Thus, provided there is no other general change which affects the distribution of income between the working-classes and employers, there is a general presumption that periods of falling prices will be favourable to the former, while rising prices will be to the latter's advantage.

This point is forcibly illustrated by the attitude of various

classes of the community towards two important price movements of the century before the war. From the year 1874 to 1896, when prices were falling rapidly, the country went through some very severe years of depression, and it became common to associate the fall in prices with bad trade. Royal Commissions were appointed to inquire into the causes of the trouble, while the bimetallists suggested that the fall of prices should be arrested by making silver standard money as well as gold. The depression was, perhaps, most acutely felt by agriculturalists, who were hard hit by the competition of the food supplies and raw materials which were pouring into the world's market from the New World. But this cheapening of food was exceedingly advantageous for the industrial population of the country, and there was, except at certain periods, little discontent among the workers.

This divergence of interest between various sections of the community is explained in the answer of Professor Marshall to the chairman of the Gold and Silver Commission. "I think," he said, "that it wants very much stronger statistical evidence than one yet has to prove that the fall of prices diminishes perceptibly or in the long run the total productiveness of industry. Supposing that it does not diminish considerably the total productiveness of industry, then its effect is, I think, on the whole good, because it certainly tends to cause a better distribution of wealth than we should otherwise have . . . and really I could not say that there was any serious attempt to prove anything else than a depression of prices, a depression of interest, and a depression of profits—there is that undoubtedly." "Then," said the chairman of the Commission, "do I understand you to think that the depression in those three respects is consistent with a condition of prosperity?" And Professor Marshall replied,

"Certainly; the employer gets less and the employee gets more."¹

But large
falls in
prices lead
to trade
depression.

Marshall was here clearly referring to such gradual declines of prices as that of the 'eighties and early 'nineties of last century. When prices fall so rapidly as to outpace all possibility of adjustment, the "total productiveness of industry" is adversely affected. Since the profits of those who direct industry consist of the excess of selling prices over costs of production, a fall of prices will diminish or eliminate profits, and hence lead to a restriction of the volume of production, unless costs can be reduced with equal rapidity. But if the fall of prices is very rapid, it will be difficult to reduce wages with equal promptness and, in any case, the burden of indebtedness cannot be altered except by default or, slowly and partially, by conversions. The rapid fall of prices in 1929-31, when wholesale prices in Great Britain fell by one-third in twenty-four months, led to such drastic reductions in the scale of industry and of commerce that the gain to the working-classes as a whole through the falling cost of living was very largely neutralised by the abnormal degree of unemployment

The second example is provided by the period after 1896, when the trend of prices was reversed. For the eighteen years between that year and the outbreak of the Great War, profits were on the whole exceedingly satisfactory, and the gross assessment of income by the Commissioners of the Inland Revenue nearly doubled. In spite of the waste of capital involved in the Boer War and the level of income tax and super tax, which at the time were unprecedented, signs of luxury and excessive wealth were to be seen on every hand.

But the condition of the working-classes did not present

¹ Gold and Silver Commission. Marshall's Evidence. Qs. 9816 *et seq.*

by any means such a satisfactory picture. Labour disputes were rife in England, Germany, France, and America, the leading note in every case being a protest against the rising cost of living and a demand for higher wages to meet extra expenses.

It is not, of course, suggested that the rise of prices was entirely responsible for these disturbances, in which political and social considerations played an important part; but the slow adjustment of wages and prices was undoubtedly an underlying economic cause of the discontent. It should not be a matter of great difficulty to devise means for more rapidly adjusting wages to changes in the cost of living; but in the absence of such machinery a general rise of prices will presumably continue to alter distribution to the disadvantage of the wage-earner.

There is, however, another side to the question. Rising prices are always regarded by business men as a hopeful sign, for they generally imply a brisk demand on the part of consumers, while they are a universal accompaniment of booming trade. A hopeful tone in business circles often has a way of converting itself into action, and the confidence engendered by high profits encourages new enterprises, and may even lead to the opening up of entirely new channels of trade. This activity creates a greater demand for labour, which means less unemployment and higher wages. At the moment the improvement of wages may not be sufficient to cover the rise of prices; but though wages lag behind for the time, it is claimed that, looking at the matter from a longer point of view, a spell of trade activity will ultimately result in permanent improvements in the means of production, which will advance the welfare of the whole community. In this respect, then, a rise of prices would seem to be a social advantage. But the proposition that the productivity

And rising prices are a sign of expanding trade.

of a country's labour and capital as a whole increases in times of rising prices faster than during falling prices is by no means proved, for there is evidence that the pressure of low profits and prices often has as great an effect as the inducement of large profits in stimulating the use of new methods of production.

It will, however, be more profitable to discuss the relative advantages and disadvantages of rising prices when the effects of price changes during the last hundred years have been briefly considered.

Analysis
of various
kinds of
income.

This chapter may be concluded by a rough analysis of the various classes of income-receivers in the community, classified according to the effect produced upon them by a rise of prices. The classification assumes that the rise applies equally to all kinds of commodities except those that are fixed by law or custom. Given such a change, some interest and profit receivers will benefit at once, while others will lose because their incomes are fixed, for some time, at all events. Similar differences appear between various sections of the professional and wage-earning classes. In the long run, the slower moving incomes will probably rise, and eventually neutralise the advantages gained at first by others. But the table on the opposite page serves to show what classes will be harmfully affected while the change is in progress.

The classification makes one further assumption, namely, that trade is not affected by the general rise of prices. In practice, enterprise is likely to be encouraged and trade increased, at first at all events, and if this happens many groups which are placed among those who suffer would find that they were profiting from an increased turnover. Such undertakings as railway companies, for example, may possibly make up by the increased volume of traffic for the fact that coal, wages, and materials are rising in price, while

	RECEIVERS OF RENTS, PROFITS, INTEREST, ETC	SALARIED AND PROFESSIONAL CLASSES.	WAGE-EARNERS
Classes benefiting from a rise of prices.	<p>A.</p> <p>Farmers, mine owners, and all producers of commodities whose product rises in price faster than the cost of production, especially producers with fixed rent or interest charges, or manufacturers whose wages-bill is an important item. Ordinary shareholders in such concerns.</p>	<p>D.</p> <p>Managers paid a commission on the profits of concerns included in group A.</p>	<p>G.</p> <p>Profit-sharers in concerns included in group A.</p>
Classes to whom a rise of prices is a matter of indifference.	<p>B.</p> <p>Producers whose expenses increase with the rise of prices—and whose profits, therefore, also increase at the same rate.</p>	<p>E.</p> <p>Stockbrokers, auctioneers, and all persons paid by a commission on the value of goods dealt in. (Such classes probably actually reap a benefit from an increased turnover.) Civil servants and others whose salaries are altered in accordance with movements in the cost of living</p>	<p>H.</p> <p>Wage-earners whose wages rise by a sliding scale—provided the basis of such scale moves with general prices.</p>
Classes harmfully affected by a rise of prices.	<p>C.</p> <p>Landlords whose land is let on long lease. Holders of consols, mortgages, debentures, and other fixed interest securities. Producers who cannot charge increased prices, but whose expenses increase with the rise of prices. For example, railway companies, cab proprietors, and to a less extent bus companies</p>	<p>F.</p> <p>Lawyers and other professional classes whose income is fixed by custom. Civil servants whose income moves on a graded scale, such scales being very rarely altered.</p>	<p>I.</p> <p>All employees whose wages do not automatically follow general prices, those whose wages are most unalterable being most severely hit. This also applies to all unorganised trades where wages are often on a customary basis. Cab-drivers, hardressers, and all whose wage depends on a standard price.</p>

their fares and freights are unchanged. These are, however, subsequent effects, and must not be confused with the initial changes due merely to the fact that some incomes vary with prices and some do not.

Deductions from this table must not be pressed too far or applied to special cases, for no rise of prices is as uniform as has here been supposed, and the secondary effects referred to above will most probably place certain of the groups in the second and third rows among those who benefit at once. Nor can it be foretold how long it will take any particular class to improve its position and raise its income. In the case of wage-earners, for example, much depends on the competing strength of employers and employed at the moment. But the table shows the initial changes and makes it easier to trace out the way in which secondary effects operate.

It follows, of course, that a fall of prices works in precisely the opposite manner, the classes which are here shown to benefit changing places with those on whom a rise of prices has a harmful effect.

It should, however, be remembered that all these conclusions are subject to the proviso that the change in prices is not sufficiently extensive to affect the total volume of trade. A large and rapid fall of prices, as has already been pointed out, although no worse on the score of equity—and probably better—than an equally large and rapid rise, is undoubtedly more damaging for a time to the volume of production, and hence to the real income of all classes.

BIBLIOGRAPHICAL NOTE

The points raised in this chapter are discussed by Jevons in *A Serious Fall in the Value of Gold*, by Marshall in his evidence to the Gold and Silver Commission (reprinted in *Memorials of Alfred Marshall*), and in D. H. Robertson's *Money*.

CHAPTER III

THE WHOLESALE PRICE INDEX NUMBER FROM 1820 TO 1933

CHANGES in average prices may be most conveniently studied over a period of years by constructing an "Index Number" based upon the wholesale prices of a number of important commodities. But as a long list of figures cannot be taken in at a glance as readily as a pictorial representation, the price index numbers which are to be discussed in the following chapters have been reproduced on two charts, which will be found at the end of the book. The black line in the first chart represents the movement of average wholesale prices over the whole period in relation to the level in 1900, which is taken as the basis, the figures which it depicts being given in Appendix A, where the method on which the statistics are calculated is also explained. All that it is necessary to say here is that an index number combines the prices of a number of different commodities in a single figure which enables us to compare the average level at some given year or series of years with the average level at preceding or succeeding dates. Thus in 1826 prices were represented by the figure 150; that is to say, on the whole, prices in that year were 50 per cent higher than in the year 1900. It would therefore have required £150 in 1826 to purchase goods which could have been bought in 1900 for £100.

The black line on the second chart shows the movements of a similar wholesale price index during the war and post-war period. In this case, however, for reasons of convenience,

the year 1913 is taken as a base, and the movements are shown in greater detail.

Its relation
to retail
prices

It may at this point be asked whether an index number based upon wholesale prices largely of raw materials and unfinished products can be said to indicate changes in the general purchasing power of money, seeing that the mass of the community make their purchases retail and not wholesale and, in any case, buy finished products. The answer to this query is partly based on the practical difficulties of compiling a retail prices index number; for retail commodities (except one or two articles of food) vary so greatly both in quality and in form from time to time that it is difficult, in most cases, to obtain standard quotations for the same article over a long series of years. No reliable quotations, for example, purporting to represent the retail price of candles, boots, or men's cloth suits can be given for a period of, say, fifty years, which would not be invalidated by changes in quality, even if figures could be obtained for the same locality or for similar kinds of shops during so long a period. It is quite easy, on the other hand, to find standard quotations for raw wool, leather, and tallow. Cost of living index numbers generally measure changes in the prices of a restricted range of standard commodities, in the proportions in which they are consumed by the working-classes. These index numbers are therefore only approximately representative of retail prices in general. As to whether retail prices have followed the same course as wholesale prices over the whole of the period with which this book is concerned or not, no definite proof can be obtained because of the practical difficulty referred to; but comparison of the wholesale price index with the cost of living index during the latter part of the period and of specific wholesale and retail prices in cases where both sets of figures are available in the remainder of

the period seems to show that though the fluctuations of retail prices are less violent and less prompt than those of wholesale prices, the changes in the general level over a long period are always in the same direction, and in most cases of approximately the same extent. The red line in the second chart shows the movements of the Ministry of Labour index number of the cost of living during the last twenty years. The figures of this index and some remarks on its composition and limitations are given in Appendix A, together with a retail price index for earlier years, compiled by Mr. G. H. Wood.

A further qualification of the wholesale price index number as a test of purchasing power is that it only includes material things and excludes all payments for services. The housewife who has a certain income to spend finds that it will go further if the wages of domestic servants are low than if they are high. This is, therefore, one of the items which determine the purchasing power of her weekly housekeeping money. But though this objection is sound, wages are nevertheless excluded on account of the difficulty of getting accurate figures for the early part of the century; while even for the last 60 or 70 years, for which statistics are much more numerous, it is no easy matter to discover what part of the nation's income is spent on direct services, compared with the expenditure on commodities—what importance, for example, has to be attributed to a rise in the wages of hotel-waiters in comparison with a rise in the price of meat. An index number of wage rates compiled from several sources and extending from 1850 to the present day is given in Appendix E. Again, rent is excluded on similar grounds, for it is impossible to get any reliable series of figures showing the price of housing accommodation except for certain standard varieties of working-class homes, which are included

Services
and rent
are also
excluded.

in the cost of living index number. These three qualifications, viz. that the index number is not founded on retail prices and does not include services or rent, must be borne in mind when using it as a criterion of changes in the purchasing power of money. But commodities are far the more important object of expenditure, and the fluctuations of the wholesale prices curve may, therefore, be taken as affording at all events a rough indication of permanent changes in the value of money. The value of this criterion will, moreover, be more apparent from the more detailed study in later chapters, in which such evidence as can be gleaned from retail prices will be mentioned in corroboration or disagreement with the conclusions which are based upon wholesale prices. If, however, it were ever decided to regulate credit policy with the explicit object of avoiding fluctuations of prices it would probably be necessary to compile a more accurate and comprehensive measure of the purchasing power of money in general than is provided by any of the indices now available.

Features
of the price
curve.

The point that strikes one most on a first inspection of the curve is the violence of the fluctuations at the beginning and end of the period compared with the smaller fluctuations of the long intervening period.

The first two decades of the nineteenth century cover a period of quite abnormal conditions caused by the Napoleonic wars. The difficulties of foreign trade threw the country largely on to its own resources and made it particularly dependent on the home harvest; and as the crops of the country varied during these twenty years between great abundance and severe scarcity, the price curve shows extraordinarily violent fluctuations. In addition, for the greater part of this earlier period, the currency was inconvertible and seriously inflated. Owing to the lack of sufficiently

reliable and detailed information, these years have been excluded from the historical discussion, which takes the year 1820 as its starting-point.

The peculiarities of the period from the autumn of 1914 to the present day are treated at length from the theoretical standpoint in Chapter V, and historically in Chapters X and XI, where the reasons for the greater fluctuations of prices are explained.

Even, however, in the period of comparative stability of prices from 1820 to 1914, considerable fluctuations can be remarked from year to year. For example, there is a sharp peak in 1825, following three years of steady prices. There are similar peaks in 1839 and 1847, and, in the later decades, in 1900 and in 1910, as well as in many other years. There are equally sharp depressions in such years as 1833, 1844, and 1879. These sudden changes are due to what is known as the trade cycle, that is, the familiar alternation of prosperity and depression. These cyclical fluctuations are not of primary importance for the purpose of this book, which is rather concerned with the "trend" of prices which underlies these more rapid movements. When there is an upward trend of prices there will be both upward and downward cyclical movements, although the former will tend to predominate; the reverse being the case when there is a downward trend. No attempt will, therefore, be made here to expound the theory of the trade cycle. Nevertheless, it may be profitable briefly to consider some features of the price history of the years preceding the peak of prices in 1825, as they will serve to show the connection between temporary booms and permanent changes in the level of prices.

Since the year 1820 trade had been rapidly growing with South America, where the colonies which had revolted from Spain were now free from the restrictions of the old mercantile

The distinction between long-term trends of prices and short-term cycles.

The boom of 1825.

system and could trade with whom they pleased. England, who had contrived to assist in these proceedings without an actual breach with the Government at Madrid, entered wildly into trans-Atlantic enterprise, poured capital into the New World, and formed companies for all manner of purposes. In 1823 Mr. Huskisson had removed some of the most restrictive of the duties on foreign commerce, and his measures happened to follow a series of good harvests, in 1820, 1821, and 1822. The resumption of cash payments (gold coin for notes) by the Bank of England in 1819 had restored confidence in our monetary system, and the general optimism culminated in a boom of company flotation in 1824. The demand for commodities began to outrun the supply, and by the middle of 1825 prices of many commercial products—cotton, silk, sugar, iron, etc.—had risen from 50 to 100 per cent. But people cannot buy high-priced goods without plenty of money in hand, and in order to provide funds for the new companies that had been formed and for general business purposes the country banks issued notes freely, and the Bank of England allowed its gold reserve to dwindle while it also increased its note circulation. But high prices encouraged the importation of commodities, and gold began to be drawn out of the country as well as into circulation, and as soon as the over-confidence in the state of trade began to wane, it appeared that the cash reserves of the country banks available for the redemption of their notes were dangerously small. A run on the banks, therefore, set in, many of them failed, and the whole structure of inflated credit and prices came tumbling down. The Bank of England lost its reserve of bullion, and was reduced to such straits that £2,000,000 was borrowed from the Bank of France.

The Directors of the central bank were at the time greatly censured for their policy during this outburst of speculation,

and when a few months later the Charter came up for the usual nine-year renewal, the general feeling of dissatisfaction caused a modification of its monopoly.¹

The history of this crisis shows that the high prices which accompany a boom of trade do not depend upon an increase in the ultimate basis of credit and the currency, whether that basis is gold—as was the case in 1825—or merely a fiduciary issue of notes. The rise of prices is financed partly by the greater rapidity with which all forms of money and credit circulate in periods when optimism is high and trade is brisk, and partly by the creation by the banks of greater amounts of credit—in the shape of notes or deposits—on a basis of cash which has not been augmented. But both of these expedients are temporary. For with the first check to optimism the velocity of circulation will fall to, or even below, its normal level. Moreover, when it becomes apparent that the banks are over-extended, they will attempt to reduce their commitments. Their debtors will be called upon to repay their borrowings, and in the effort to do so will sell their assets and reduce the scale of their operations. This liquidation will depress prices, and the reversal of the previous upward tendency will itself have a large psychological effect. At its best this contraction of credit will be orderly; at its worst it will take the form of a banking panic. But in any case, unless there is an increase in the currency itself, or a permanent change either in the rapidity of its circulation or in the proportionate amount of credit which can be built upon it by the banking system, the price-level

¹ Private banks were already allowed to issue notes. The clause forbidding note issue by any joint-stock corporation except the Bank of England was limited by the 1826 Charter to London and district, within a sixty-mile radius. The Charter, moreover, was so worded that banking functions, other than note issue, could be undertaken by joint-stock corporations even in London. Hence the foundation in 1833 of the London and Westminster Bank.

will tend to fall again as soon as the temporary circumstances of the boom disappear.

The boom of 1825 and the peak which it caused in the price curve are, therefore, not to be regarded as permanently affecting the value of money, and the same thing may, in general, be said of all the similar movements of the period.

Fluctua-
tions since
1820.

Turning, therefore, from the peaks and depressions to the general tendency of the curve, it will at once be seen that its direction has changed several times since 1800. Starting from 1809 there was a general downward movement, in spite of sometimes very violent fluctuations, until 1850. From that year until 1873 there was a halt in the downward tendency, and during this period prices tended to move upward. From 1873 to 1896 there was a steady downward movement once more, carrying the index to the lowest level of the nineteenth century. From 1896 to 1914 there was a renewed upward movement, during which over half the ground lost in the previous period was recovered. With the outbreak of the war in the summer of 1914, a very rapid upward movement began, which lasted until eighteen months after the armistice and carried prices to a point three times as high as the level of 1913. The next stage, from the middle of 1920 until the beginning of 1922, was one of rapidly falling prices. From the beginning of 1922 until the middle of 1929, prices were comparatively stable, although there was a falling tendency. Finally, the great depression of the last five years has been accompanied by a drastic fall of prices. The fall of prices since 1920 has been sufficient to bring the index number down to, and even below, the pre-war level, thus entirely cancelling the wartime rise.

The four periods between 1820 and 1914 can be indicated numerically by quoting quinquennial average index numbers at these various turning-points—the dates chosen represent-

ing as nearly as possible the five years typical of the beginning and ending of the chief movements. The fluctuations since 1914 have succeeded each other more rapidly, and the index numbers for individual months, rather than quinquennial averages, have been quoted:

INDEX NUMBERS AT THE TURNING-POINTS IN THE
PRICE CURVE

				Change in each Period.	Average change per Annum
Average 1821-25	.	.	154		
„ 1846-50	.	.	116	- 38	- 1.5
„ 1871-75	.	.	138	+ 22	+ 0.9
„ 1894-98	.	.	82	- 56	- 2.4
„ 1910-14	.	.	110	+ 28	+ 1.75
April, 1920	.	.	355	+ 245	+ 31.2
February, 1922	.	.	176	- 179	- 103.8
March, 1929	.	.	161	- 15	- 2.1
December, 1933	.	.	106	- 55	- 11.6

The study of the course of prices thus naturally divides itself into several periods, which will be discussed in more detail in succeeding chapters. The movements of prices in the years 1914 to 1933 were to an exceptional extent influenced by special circumstances which varied from country to country, although the underlying unity of the influences working on prices in each country tended to be resumed after the war. But prior to 1914 the main countries of the world were linked together by their common use of gold (or were on a silver standard whose ratio to gold was fairly constant). Hence, as will be seen from the following table of ^{Price} movements in foreign countries, decennial averages of wholesale price index numbers in

England, Germany, and the United States, the course of prices between 1840 and 1914 was roughly similar in the three countries, particularly since the 'seventies. It will be noticed, however, that the fall in England prior to the 'nineties was greater and the subsequent rise less marked than in Germany or America. This is a fact which will require explanation when these periods are dealt with.

	England (Sauerbeck)	Germany (Schmütz).	U S A (Labour Bureau)
1841-50	136	..	128
1851-60	145	130	131
1861-70	151	130	140
1871-80	144	132	137
1881-90	113	108	115
1891-1900	100	100	100
1901-10	110	115	117

Correlation
with the
curve of
gold pro-
duction.

On the first chart there has been added a second line in red, which represents, as far as can be ascertained, the growth of the world's gold production. The first feature of this curve is a sharp rise that took place about 1850 as a consequence of the discoveries of gold in California and Australia. This date corresponds to the first change in direction of the price curve. The second change in the index number does not correspond to a very marked fluctuation in gold production, but it will be observed that from 1853 onwards there is a steady decline in the annual output, which continued well into the 'eighties. The 'seventies and 'eighties saw, moreover, the establishment of a gold standard in several important countries, and in consequence there was a very great increase in the demand for gold. When this demand is taken into account it will be realised that there was during these two decades a considerable shortage in relation to the world's requirements of gold for currency and

other purposes. The upward movement of prices between 1896 and 1914 followed closely on a new upward movement of the gold production curve. There seems, therefore, to be at all events a *prima facie* connection between the world's gold supply and the general level of prices throughout the long period when the currency was based on gold. This connection is, of course, in no way proved by the diagram, but if it be established that there is any relation at all between the two curves, the question of the world's gold supply at once becomes important, unless the gold standard is never again to be generally restored.

BIBLIOGRAPHICAL NOTE

Appendices A and B deal with the subject-matter of this chapter, and references will be found in the Bibliographical Notes at the end of those Appendices. The two most useful references for the theory of index numbers are Irving Fisher's *The Making of Index Numbers* and J. M. Keynes' *Treatise on Money*, Book II. chaps. iv-viii.

A description of the crisis of 1825 is given in Levi's *History of British Commerce*, part iii. chap. iv. The usual course of a pre-war cycle is clearly explained in F. Lavington's *The Trade Cycle*. Professor A. C. Pigou's *Industrial Fluctuations* should also be consulted.

CHAPTER IV

DIGRESSION ON MONETARY THEORY IN RELATION TO PRICES

BEFORE carrying any further the discussion of actual price movements, some attempt must be made to analyse the various factors which determine the purchasing power of money. This analysis will show what influences may be looked for when we come to examine the history of particular periods of falling or rising prices.

Differences
between
the pre-
war and
post-war
periods.

The first edition of this book was published in 1912, when for nearly a hundred years the development of commerce and finance had been gradual and, on the whole, regular, subject neither to financial catastrophes nor to the interventions of Governments on a large scale. The general level of prices had indeed fluctuated, as will be described in subsequent chapters, and years of prosperity had alternated with years of depression; but the index number of wholesale prices had rarely fluctuated by as much as 10 per cent in one year, and fluctuations of these exceptional dimensions, when they occurred, had never been repeated in the following year. For more than ninety years without a break the pound sterling had been convertible into gold at a fixed ratio.

In these circumstances it was reasonable to take the gold standard for granted when writing upon monetary topics and to discuss the relations between money and prices on the tacit assumption that what now seems to us to have been the extraordinary freedom of the nineteenth century from violent change would continue to be the dominant char-

acteristic of the twentieth century. These assumptions, which seemed so natural at the time that they were made almost unconsciously, were soon proved false. In the ten years following 1912 the price-level was first trebled in less than six years and then halved in two years. The gold standard was swept away in the war, and though it was later revived, it never regained the almost automatic character of its pre-war functioning. The actual circulation of gold coins was never resumed, and the absence of the gold sovereign was symbolic of the incomplete nature of the restoration. Even so, the post-war gold standard was unable to withstand the onslaught of the great depression in the early 'thirties, and it now remains in force only in a few Continental countries of Western Europe.

Rapid vicissitudes such as these clearly require a somewhat different theoretical explanation from that which suffices for less abnormal periods. The underlying theory, if it be a correct one, must apply both to normal and to abnormal conditions; but the emphasis must be different, and assumptions which can safely be made in the one case become hazardous in the other. Just as pathology is a special branch of the science of medicine, so the theoretical explanation of the war and post-war period is a special branch of monetary theory as a whole.

It has seemed best to make only the minimum of changes in the remainder of the present chapter. Nothing in it is directly untrue of the post-war period, but the reader should bear in mind that it applies primarily to a gold standard economy of the type which prevailed in Great Britain before the war. In the next chapter the problems of theory will be approached from the angle of the post-war period.

The first stage in the discussion may be expounded by means of a somewhat fanciful illustration. Let us suppose

The latter
will be
discussed in
the next
chapter.

Illustration
of the
relation
between
the quan-
tity of
money in
circulation
and prices.

that the prices of all goods and services in England are suddenly doubled. A penny newspaper will be sold for two-pence, three-halfpenny stamps will cost threepence, while for every pound previously paid in wages two pounds will now be paid. Clearly, under such circumstances everybody would need to carry about double as much money as they carry at present. The clerk going to his work in the city, for example, would need double the amount of small change for his fare and lunch; those who possess a banking account would need to keep twice as large a balance for domestic or other purposes, while the employer with a large wages-bill would require from the bank double as much currency as he now requires at the end of the week. Assuming that this doubling of prices had no other effects in diminishing or increasing trade, the total money value of all business transactions performed in the country would in fact be doubled. But such a change could not occur without a corresponding increase in the various means by which exchanges are made. If, for instance, all exchanges were made by means of notes, it is obvious that either the quantity of notes would have to be doubled or else the same notes would have to pass from hand to hand much more rapidly than they do at present.

Paper
money
and bank
money
must be
taken into
account.

As a matter of fact, however, a very large proportion of transactions do not require the use of notes at all, but are made by means of cheques, bills of exchange, etc. To discuss here the principles of banking and the credit system would take too much space; it is only necessary to bear in mind that the banking system of a country is a device for enabling a very large number of transactions to take place without the use of currency. The banks find it prudent to keep a certain amount of currency as a reserve against their deposits; but the proportion which the currency thus held by the banks bears to the total volume of money which they

provide for the public is not necessarily a fixed proportion, but is variable within limits. Similarly, the currency legislation of most countries specifies that the amount of currency issued must not exceed a certain multiple of the amount of gold held in the country; but the actual proportion of gold to currency fluctuates considerably. In the case that we have supposed, therefore, the doubling of prices might be met by some increase in currency on the same basis of gold, or by an increase in credit without any increase in currency, or by the device of using book-debts and only settling the balance in cash at the end of a specified period. But whichever of the many possible devices were used, it is clear that the total value of the circulating medium (including bank deposits) changing hands during the year would need to be doubled.

The matter may be put in another way. If a country has a currency of the value of £21,000,000 in circulation, of which £20,000,000 is notes (or gold coin) changing hands once in two days, and £1,000,000 is small change, changing hands on an average twice a day; and if it also has a banking system with deposits of the value of £100,000,000 drawn upon on an average once in ten days, the total value of circulating medium changing hands in ten days would be £220,000,000, made up as follows:

(a) £20,000,000 notes circulating 5 times	=£100,000,000
(b) £1,000,000 small change circulating 20 times	= 20,000,000
(c) £100,000,000 bank deposits circulating once	= 100,000,000
	<u>£220,000,000</u>

Under these circumstances the total value of cash transactions made during the ten days would be exactly £220,000,000; that is to say, there is an exact equivalence between the money changing hands and the value of business done. Now, if the number of transactions to be done in the ten days increases, while no expansion of the circulating

medium is possible (that is, neither an increase in the total amount of currency or deposits nor an increase in the frequency with which it changes hands), average prices must fall; for otherwise some of the transactions would not take place for want of a circulating medium, and those who had goods to sell but were unable to do so would cause a lowering of prices by competing for a market. If, on the other hand, the number of transactions diminishes there must ultimately be a rise in prices, unless the money turnover also is contracted. As the total of deposits in the banking system is open to variation, and as the speed at which the various forms of money change hands fluctuates considerably, it does not follow that a diminution of trade is necessarily followed by a rise of prices. In point of fact, diminutions of trade are usually associated with low, or at least falling, prices.

Similarly, if there is an increase in the money available, either on account of an increase in currency, or because it does its work faster by circulating more rapidly, or because an improvement in the credit system enables a larger volume of bank deposits to be based with safety on the same amount of currency, there will ultimately be a rise in prices unless the number of transactions increases as fast as the increase in currency.

Summary
of the
forces
which
determine
the level
of prices.

The level of prices, therefore, depends on two sets of influences: (1) the volume of the circulating medium available in any country, and (2) the total volume of transactions which have to be performed. The volume of the circulating medium is determined, as explained above, by the development of the banking system and by the quantity and rapidity of circulation of the currency. The number of transactions is determined chiefly by the productivity of capital and labour (which depends upon the progress of science, the number and skill of the population, and the extent and importance of

foreign trade), and to a less extent by the number of times goods change hands in the course of business. Thus an increase in the number of goods produced will increase the number of transactions, while a more minute division of labour which requires that goods and currency should pass from hand to hand more frequently than before, will have the same effect. A study of the relation between the currency and the number of transactions to be performed, therefore, involves a consideration of all the influences which make for a greater production of commodities and services on the one side, and of the influences which affect the amount of the circulating medium on the other.

These two sets of factors may for convenience be summarised in the following tabular statement:

Conditions affecting the quantity of the Circulating Medium.	Conditions affecting the volume of Transactions to be performed by the Circulating Medium.
<ol style="list-style-type: none"> 1. Quantity of notes and coins in circulation. 2. Number of times they change hands. 3. Amount of bank deposits against which cheques may be drawn. 4. Average number of times deposits are drawn upon (<i>i.e.</i> rapidity of circulation of bank deposits). 	<ol style="list-style-type: none"> 5. Total goods produced. 6. Number of times they change hands between the first stages of production and their final purchase by consumers. 7. Total personal services rendered by members of the community, including services by wage-earners, salaried persons, managers, etc. (but excluding persons working on own account who do not receive their salary as a separate transaction). 8. Obligations incurred which involve payment for the use of land, houses, or capital. 9. Stock Exchange transactions and other transfers of property. 10. Transactions such as betting debts, gifts, philanthropic subscriptions, etc., which are not in return for either goods or services. 11. Volume of taxes and of disbursements by the State.

The link between these two groups of factors is the general level of prices for commodities, services, etc., and when that is known it establishes between them what has been called "the equation of exchange".¹

How price
changes are
initiated.

The discussion up to this point has so far involved no question as to which differences of opinion could arise, and the equation of exchange has, in fact, been called a self-evident proposition. But as soon as an attempt is made to show how a change on one side communicates itself to the other or affects the level of prices, the discussion becomes more complex. In the first place, it must be clearly recognised that a change of prices may originate either on the monetary or on the productive side. It has already been seen that booms in trade may be started without any important change in the volume of the currency, and that they may be "financed"—that is to say, the increased number of transactions at a higher level of prices made possible—by an expansion of bank deposits and a faster rate of circulation without any corresponding increase of reserves. If such a burst of trade is followed by a permanent increase in the production of goods without a permanent corresponding increase in the circulating medium, prices will ultimately fall lower than before when the strain on the credit system has caused it to contract to its old limits.² If, on the other hand,

¹ It should be noted in passing that changes in any one factor on either side do not influence all the opposite factors to the same extent. An expansion of bank credit, for example, will have a more direct and immediate effect on Stock Exchange transactions than on payments for personal services; while an increase in the volume of raw materials produced in an agricultural country will call for a greater supply of currency rather than for an increase of cheques or bank-notes. The close connection of all factors is, however, brought home by the consideration that even in this latter case the need to increase currency will probably cause a demand for gold which will fall upon bank reserves and affect the conditions of the money market by means of the rate of discount.

² The reaction is partly caused by the fact that the higher level of prices and wages produced by the boom calls for larger quantities of currency in circulation for all those payments—such as wages—which cannot be made by cheque. This

the pressure of the boom induced people to invent new ways of economising currency or of increasing the credit currency without risk, the permanent addition to the currency might equal the increase of production, in which case prices would remain unchanged.

Whenever production is increasing rapidly prices will tend to fall unless there is also an expansion of the circulating medium; if there is no such increase in the circulating medium, prices will slump. At such a time loud complaints of overproduction may be heard, for at the existing level of prices consumers have not in hand sufficient purchasing power to buy the goods that are in the market.

But price changes may also be initiated by variations in the circulating medium. For a large part of the period with which this book is concerned, the major monetary systems of the world have been based, with more or less directness, upon gold; and there is, therefore, particular relevance in showing how an increase in the world's gold supply affects prices.

Under the conditions of the full gold standard, as it existed in the decades before 1914, the greater part of the currency consisted of actual gold coins, which were freely coined at the Royal Mint. Now let us suppose that, in these circumstances, a million pounds' worth of gold was mined in South Africa and sent to London. The gold-mining company in producing the gold would have incurred expenses for wages and salaries, coal, machinery, and transport charges to the extent of, say, £600,000. Purchasing power to this amount would thus have been transferred by means of South African currency to wage-receivers, railway companies, and sellers of machinery and coal, who in their turn would spend a large

Illustrations
of the
effects of an
increase of
gold

(i) Direct
effects.

drain depletes the banks' reserves at the same time that their deposits are increasing.

part of their money by buying goods made in England. Such purchases would be paid for by the South African importer by means of a bill of exchange, which the English exporter would present, and for which he would receive payment, at the mining company's London office. The purchasing power of the British public would therefore be increased by a large part, if not all, of the £600,000 spent in expenses of production. The claim on the remaining £400,000 would be distributed among those who held shares in the mining company, and would add to their effective demand for whatever commodities they wished to consume. Thus the demand of all the claimants on the million pounds would have tended to raise the prices of whatever they buy, unless—as would be unlikely—more of such goods were immediately produced. If the mining company had had the gold coined into sovereigns, and used them to meet its bills and pay its dividends, the volume of currency would clearly have increased equally with the increase in purchasing power. But if the company had followed the more likely course of selling the gold to the Bank of England, taking in return a credit of £1,000,000 in the books of the Bank, the same result would follow. For the total of deposits would be increased, and the effect on the total of the circulating medium of the nation would be the same.

But the effect would not stop here; those who had sold the commodities would find that they in their turn had more purchasing power at their command, either because they had sold more goods, or because they had sold the same goods at higher prices; and they in their turn would therefore make a larger demand on those from whom they purchased. In this way the gross purchasing power of the community would ultimately be increased by the million pounds multiplied by the number of times it changed hands during the year—the

first link in the chain having been the demand of those who had the first claim on the gold. Unless the number of business transactions immediately increased (whether by the production of more goods or otherwise) in proportion to this addition to the total purchasing power of the community, prices would rise, and more currency change hands in particular transactions.

But there is a second and equally important way in which such an import of gold would stimulate prices. An increase of £1,000,000 in the gold reserve, and also in the deposit liabilities, of the Bank of England would have increased its reserve ratio. The effect of this would be to make money "cheap" in the money market and perhaps even lead to a reduction of the Bank Rate. Banks would be encouraged to lend more freely. Merchants and others would think it a favourable opportunity to employ floating capital in enlarging their trade, and would borrow in order to buy more cotton, coal, machinery or other materials of business. A whole series of influences would thus be set in motion which would tend to raise the prices of raw material, wages, and ultimately retail commodities. This tendency would then draw the gold from the Bank into circulation. (ii) Indirect effects.

As illustrating this point, figures are given in Appendix C, showing the total amount of gold coin and bullion held by the Bank of England since 1844, together with the average minimum rate of discount. Looking to those periods in the seventy years before 1914 when new gold was coming into Europe, it will be seen that the Bank's bullion reserve increased rapidly between 1847 and 1852, and again in 1893-97, and in both these periods was accompanied by falling discount rates, which eventually stimulated trade. In the second of these periods the cheapness of money was first taken advantage of by speculators, and on the strength of "cheap

money” professional dealers originated, and the general public plunged wildly into, a great speculative Stock Exchange boom. The Kaffir Boom, based upon the development of gold mining in the Transvaal, was thus financed by the very gold which the companies whose shares were quoted in the “Kaffir Circus” were formed to produce. But when the City had had its fling the money found its way into industry and caused an expansion of trade, which reached its maximum in the beginning of 1900, producing in that year the first of the three peaks which stand out on the price curve between 1896 and 1914.

(iii) Ex-
ternal
effects.

But the activity thus produced in Great Britain by the imports of gold would affect the foreign exchanges. For an extension of purchasing by the British public would lead to an increase of imports at the same time that the rise of prices would be making British exports harder to sell abroad. Furthermore, the fall of interest rates in London would make it less attractive to foreigners to retain their balances in sterling, and more attractive to raise loans in London. In all these ways, pounds sterling would be pressed for sale on the foreign exchange markets, the exchange rate would fall and gold would be exported. This gold, on arriving at its new destination, would have similar effects to those described above. In this way the new gold mined in South Africa would, in the course of time, be spread over the gold-standard world, and every country would share in the rise of prices which it made possible.

This chapter, as was remarked at the beginning, deals with monetary theory in its application to a gold-standard economy of the kind which flourished for nearly a hundred years before the war. During the four years of warfare all considerations were subordinated to the single purpose of organising the nation for war, and the monetary system, the

established conventions of industry and trade, the canons of public finance were all distorted and reshaped by the economic pressure of the time. Even after peace was restored the effects of the upheaval continued and the world discovered that stability and continuity, once shattered, can only with the greatest difficulty be re-established. The period from 1914 to the present day is, in monetary matters as in all others, a period of "storm and stress" beside which the fluctuations of the pre-war epoch seem like mere ripples on a placid surface.

In the next chapter an attempt is made to outline those aspects of monetary theory which are applicable to the war and post-war period. The difference, as was remarked on page 29, is one of emphasis only; it is no more possible to have two distinct theories of money, one for normal and one for abnormal periods, than it is to have two sciences of medicine, one for health and one for sickness. Accordingly, the next chapter will take up the exposition from the point at which it has been left and examine what additions and modifications are needed to explain the events of the last twenty years.

BIBLIOGRAPHICAL NOTE

The theory of money is discussed in innumerable books. Among those which bear most directly upon the subject-matter of this chapter, the most useful are Marshall's *Money Credit and Commerce* and his Evidence before the Gold and Silver Commission (reprinted in *Memorials of Alfred Marshall*), Professor Irving Fisher's *Purchasing Power of Money*, Mr. J. M. Keynes' *Tract on Monetary Reform*, and Mr. D. H. Robertson's *Money*. Nicholson's *Money and Monetary Problems* and Kemmerer's *Money and Prices* are also valuable as expositions of the subject as it appeared before the war.

CHAPTER V

INCONVERTIBLE CURRENCIES AND PRICES

THE principles which determine the movements of prices when currencies are not linked to gold have been the subject of much discussion by economists since the war. From these discussions a certain amount of agreement has emerged; but the subject still remains a complicated and, in part, a controversial one, of which only the simplest outlines can be given here.

The nature
of inconvertibility.

It will be useful to begin with an explanation of the difference between a currency which is on the gold standard and one that is not. A gold-standard currency need not consist entirely, or in any part, of actual gold coins. The essential condition of the gold standard is that any holder of the national currency can at any time convert his holdings into actual gold at a fixed price, and that any holder of gold can sell it for currency at a fixed price. It is sometimes provided that conversion will only be undertaken in amounts above a certain minimum limit, but it is of the essence of the gold standard that no maximum limit shall be set. When a currency is not on the gold standard, these provisions of conversion of currency into gold or *vice versa* do not apply; the currency is then said to be inconvertible.

The difference is one of emphasis rather than of fundamentals.

Fundamentally, the theory which was expounded in the last chapter applies as fully to inconvertible currencies as to those which are on the gold standard. It is a self-evident truth that, for the total of transactions, the value of the goods sold must equal the amount of money given in exchange, whether that money consists of gold or of irredeem-

able paper. Moreover, in a normal period, when there is no unusual economic disturbance or change in the rapidity of circulation, the same generalisation can be made for an inconvertible currency as for a gold currency; that is to say, the price-level will tend to be determined by the volume of the circulating medium, apart from modifications which may be introduced by the changing financial habits of the public or by changes in the organisation of industry.

In practice, however, inconvertible currencies are almost always associated with highly abnormal conditions as regards both the supply of money and the volume of transactions to be performed. This arises in part out of the circumstance that inconvertibility has, in the past, rarely been decided upon as a conscious policy, but has usually followed upon a forced suspension of the gold standard, caused, in its turn, by some economic disturbance outside the sphere of money. Perhaps the most frequent cause of the suspension of convertibility is the outbreak of war. The war of 1914-1918, for example, was accompanied by the suspension of convertibility into gold in every belligerent country except the United States. Now the enormous economic dislocation produced by wartime conditions is enough in itself to disturb the existing organisation of industry or to affect those habits of the public which determine the rate at which money circulates. With the coming of war, a large part of industry is diverted from peace-time pursuits to the production of munitions or military supplies, and it is unlikely that such changes can be effected without altering either the total volume of goods produced or the number of times they change hands before final consumption. Some alteration of the general price-level could, therefore, be reasonably expected at the outbreak of war, even if the volume of the circulating medium were unaffected.

Inconvertibility is usually associated with abnormal conditions,

especially war. Reasons for price rises in wartime.

Apart from such influences, wartime budgetary policy usually makes for a rise of prices. The expenditures of Governments increase enormously when there are armies to be fed and munitioned and all the manifold other expenses of war to be met. When the war is on a large scale it is frequently impracticable for the Treasury to raise in taxation a sum large enough to meet all the expenditure. Its second resource is to borrow from the public. But borrowing is not unknown in peace-time, and so long as the loans are subscribed out of the genuine savings of the public, it has little or no monetary effect. Purchasing power is transferred from the subscribers to the loan to the Treasury; the immediate effect is precisely the same as that of taxation, the only difference being that the Treasury contracts to make a transfer of purchasing power to its creditors in the future when the loan matures, and meanwhile to pay interest.

But the cost of the war may exceed the genuine savings of the people, or at least that part of their savings which they are willing to lend to the Government. When this happens, the only resource of the Treasury is to meet its deficit either by itself creating, or by encouraging the banking system to create, additional supplies of purchasing power. The crudest form of this is for the Treasury to print additional notes and use them to make its expenditures. A more subtle method is to go on borrowing from the banks, while at the same time making it possible for them to expand their total loans, so that the granting of loans to the Government does not involve a contraction of loans to other borrowers. How this was done in Great Britain during the war is explained in Chapter X. But whatever the exact mechanism of the process, its effect is to place in the hands of the Treasury purchasing power which has not previously been taken away either by taxation or by borrowing from anyone else. And as

the Treasury pays its bills this additional purchasing power gets out into general circulation where it competes with the already existing supply of circulating media and thus raises prices.

This rise of prices is not accompanied, in the first stage at least, by any increase in the average incomes of persons other than the Government. It therefore compels a reduction of consumption by the public, thus setting goods and services free to supply the needs of the Government. Later on, there will be pressure for an increase in wages and other incomes to compensate for the rising cost of living. But in such circumstances the increase of incomes will not overtake the rise of prices.

This process is usually described as inflation. Inflation is Inflation. a vague word to which it is difficult to ascribe any exact meaning. In its broadest sense it means any expansion of the volume of money which is more rapid than the increase in the volume of transactions, the word being sometimes also applied to the rise of prices which accompanies such an increase in the volume of money. In this sense, the increasing supply of gold from 1896 to 1914, and the resulting rise of prices, could be called inflation. But the word is frequently confined to much larger and more sudden increases of prices resulting from just such a deliberate expansion of the currency as has been described in the preceding paragraph. It is therefore necessary to use the term with caution whenever any exact meaning is intended to be applied to it. In its general sense it merely means a rise of prices following upon an increase in the volume of money. The opposite of inflation is deflation, which is similarly used in a broad and in a more special sense. In its broader meaning, it denotes any fall in prices following upon a contraction (or an insufficient increase) in the volume of money, and in this sense the period

1873 to 1896 could be called a deflationary epoch. In its more special sense the term is confined to a fall of prices consequent upon a restriction of the supply of money as a result of deliberate policy on the part of the monetary authorities.

Inconvertibility and inflation usually come together,

but not always.

The association of inconvertibility with inflation and with a rapid rise of prices has been so familiar in monetary history—the examples of the “Assignats” during the French Revolution and of the “Greenbacks” during the American Civil War may be cited, as well as the war and post-war experiences of the European nations—that inconvertibility and inflation are often treated as almost interchangeable terms. That the connection is not inevitable is demonstrated by the events which forced many countries to suspend the convertibility of their currencies into gold in the autumn of 1931. On this occasion inconvertibility was brought about by the exhaustion of the gold reserves of the countries in question, which was due, in its turn, to the profound economic and financial disturbances following on the drastic decline of prices after 1929. The price-level in the countries which had been forced off the gold standard, of which Great Britain was the chief, rose at first, but there was little expansion of the circulating medium and prices soon resumed their fall to about their previous level and remained approximately stable there. But although inconvertibility was not, on this occasion, accompanied by inflation, it nevertheless occurred in the midst of conditions of great economic strain and abnormality, so that the movement of prices during 1932–33 can hardly be taken as an example of the way in which an inconvertible currency would behave in a more normal period.

In any discussion of prices in conditions of inconvertibility the subject of the foreign exchanges must necessarily play a large part. Anyone who has travelled abroad must have

observed that British money does not circulate in foreign countries and is, generally speaking, not acceptable in payment for purchases. The traveller must therefore exchange his British currency for foreign currency. Similarly all trading or financial transactions in which more than one country is involved necessitate an exchange of currencies. The ratios at which these exchanges take place are the rates of exchange between the different currencies. Thus if a French franc exchanges for twopence the rate of exchange is francs 120 = £1, and if a dollar exchanges for four shillings the rate of exchange is \$5.00 = £1.

The foreign
exchanges.

When the currencies which are being exchanged are both on the gold standard the rate of exchange between them varies very little, and is approximately determined by the amount of gold represented by each of them. Thus until 1914, and again between 1925 and 1931, both the pound and the dollar were on the gold standard, both currencies being by law convertible into a given weight of gold. The gold equivalent of the pound, however, was about 4.8667 times (by weight) the gold equivalent of the dollar. The "mint parity of exchange" between the two currencies was consequently \$4.8667 = £1. Anyone who, having pounds, wished to have dollars, had two alternative ways of acquiring them. The first was to exchange the two currencies in the foreign exchange market in the normal way. The second was to convert his pounds into gold at the Bank of England, ship the gold to New York, and there sell it for dollars to the Federal Reserve Bank or the Treasury. This second method involved a certain amount of expense to those applying it. In the first place, Central Banks do not buy and sell gold at precisely the same price. The Bank of England, for example, when the pound was on the gold standard, bought gold at £3:17:9 per ounce troy of standard fineness and sold it at £3:17:10½.

Stability
of the
exchanges
under
the gold
standard.

Anyone buying gold in London and selling it in New York would buy it at the higher of the two British prices and sell it at the lower of the two American prices. But the difference is very small: one and a half pence in 933 pence, or about 0.16 per cent. Secondly, the exporter of gold would have to pay the cost of shipping his gold across the Atlantic and of insuring it; meanwhile he would have to forgo interest on the funds employed in the transaction. As a result of these costs, the gold exporter could not in fact obtain as many as \$4.8667 for each of his pounds. In 1913 his net receipts worked out at a fraction over \$4.85.¹ Similarly, a person exporting gold from New York to London would find that it cost him about \$4.89 to acquire each pound. Consequently, so long as the rate of exchange in the foreign exchange market was more than \$4.85 but less than \$4.89, it would be cheaper to complete the transaction in the market rather than ship gold. But immediately the rate of exchange fell below \$4.85 or rose above \$4.89, it would become cheaper to ship gold. These two rates, the "gold export point" and the "gold import point", consequently set limits to the movements of the exchange rate. The difference between them, it will be noticed, is less than 1 per cent. The net result is, then, that under the gold standard, traders, travellers, and all others who are concerned with foreign currencies can at all times be sure of exchanging their currencies at rates which never vary by more than 1 per cent.

When currencies are not, by law, convertible into gold at fixed prices there are clearly no such limits to the fluctuations of exchange rates and they can, and do, fluctuate widely. These fluctuations impose severe handicaps upon the international exchange of goods and capital, for the

¹ For the details of the calculations see Paul Einzig: *International Gold Movements* (Macmillan, 1929), pp. 91 ff.

trader never knows exactly how much he has made in his own currency by his sales in foreign currencies, while the investor who has placed his money in foreign currencies is never sure how much it will be worth a year or even a week hence.

But we are here more concerned with the relations between fluctuating exchange rates and the price-level. To explain what determines the exchange rates when currencies are inconvertible, Professor Gustav Cassel, the Swedish economist, revived and popularised, in the years immediately succeeding the war, a theory to which he gave the name of "purchasing power parity" theory. The essence of this theory is that the variations of a currency's value abroad will tend to correspond with the variations of its value at home. The external value of a currency can be measured by the amount of goods it will buy when exchanged into a foreign currency and expended in a foreign country, while its domestic value is measured by the amount of goods it will buy at home. The rate of exchange between two countries should, therefore, according to the theory, express the relationship between the domestic price-levels of the two countries.

Relations
between
exchange
fluctuations
and the
price-level.

The
purchasing
power
parity
theory.

- An example will make the matter clearer. Let us suppose that the rate of exchange between the pound and the dollar is $\$5 = \text{£}1$. Now let us suppose that the British price-level doubles so that the index number is 200, taking the previous level as 100. The domestic purchasing power of the pound has clearly been halved. According to the purchasing power parity theory, the new rate of exchange between the pound and the dollar will tend to be such that a pound, when exchanged into dollars, will also buy half as many American goods as it did before. If the American price-level has remained unchanged, the new rate will be $\$2.50 = \text{£}1$. If the
- American price-level has also doubled, the new rate will be

the same as the old. If the American price-level has increased by one-half to 150, the new rate will be $\$3.75 = \text{£}1$. In any case, it will be possible, by comparing the movements of prices in the two countries, to estimate the purchasing power parity, which is the rate of exchange at which, according to the theory, the fluctuating market quotation will tend to settle down.

This theory is no more than a first approximation. Any attempt to lend it precision renders it subject to several qualifications which it is needless to particularise here. But that it is true in a broad approximate sense will be demonstrated in Chapters X and XI. The historical importance of Professor Cassel's theory was that, coming at a time when the monetary authorities of several European countries were ascribing the wild fluctuations of their exchange rates to foreign speculation, lack of exports, or any other imaginable cause save their own unsound financial methods, it persuaded them that the first step towards currency stability lay in balancing their budgets, which, by stemming the flood of new paper money, would stop the rise in domestic prices. It thus contributed powerfully to the restoration of monetary sanity in post-war Europe.

Fluctuating
exchange
rates may
lead to
fluctuations
of the
price-level.

We must, however, pursue the argument a little more deeply. Whatever may be the exact relationship in the long run between the exchange rate and the general level of prices, movements of the exchange rate have an immediate effect upon individual prices. Let us suppose, for example, that the exchanges have moved against the pound sterling to such an extent that it is now worth only half, in terms of other currencies, what it was previously worth. In the absence of any tendency to falling prices in the world outside Great Britain, it is obvious that British imports will cost twice as much, in pounds, as they did before. Similarly, there will be

a tendency for the sterling prices of goods which are exported from Great Britain to rise, since the money obtained for these goods on the world market, when converted into sterling at the new rate of exchange, will be double the previous amount. Now, unless the volume of circulating medium or the rapidity with which it circulates increases, the general price-level at home cannot rise, and the prices of goods which are neither imported nor exported will have to fall to compensate for the rise in the prices of imports and exports. But in practice it may often happen that the banking system will grant increased credits for the purpose of financing imports and exports at the enhanced prices. There will thus be an increase in the volume of circulating media which will allow the prices of goods traded with foreign countries to rise without enforcing a shortage of credit and a decline of prices on domestic industry. If this occurs the net effect on the *average* price-level will be a rise, since some of its constituents will have increased while others have not declined. It should be noticed that if the average level of prices does rise in this way, this will, according to the purchasing power parity theory, justify part at least of the exchange movement which was its proximate cause. Thus a movement of the exchange rate, though it may be at the time it happens a movement away from the purchasing power parity, may by initiating a change in the average level of prices alter the purchasing power parity itself. The converse case of a rise in the exchange value of the currency need not be worked out in any detail. The prices of imported and exported goods will fall. When this happens the Central Bank may expand credit and force up the prices of domestic goods to such a degree as is necessary to keep the average level of prices steady. But it is far more likely that the prices of domestic goods will be left where they are and that the average will consequently fall.

This then is the first reason for believing that inconvertibility will usually be accompanied by some instability of the price-level. Even if the average level of prices remains stable, fluctuating exchange rates must be accompanied by some distortion of prices, those of imported and exported goods moving in one direction while those of domestic goods move in the opposite direction.

Another important cause of instability arises out of the mere fact that inconvertibility has, in the past, frequently been associated with inflation. When convertibility is suspended, public opinion tends to jump to the conclusion that a rise of prices and a fall of the exchange value of the currency are inevitable. Such beliefs will lead to purchases of all sorts of commodities, in order to secure them before the anticipated rise of prices takes effect, and to sales of the currency in the foreign exchange market. But action of this kind will have the effect of bringing about precisely those changes on the anticipation of which it is based; that is, increased buying of commodities will raise their price, and increased sales of the currency will depress its market value. This fall in the exchange-value of the currency will be a further influence making for rising prices. In this way, prices may rise merely because people are afraid that they will rise. In circumstances of this sort, a higher price-level can be supported without any increase in the volume of the monetary medium, since the increased anxiety of the public to purchase goods and its diminished willingness to hold money will result in an increase of the velocity of circulation.

Mention may also be made of another circumstance which, although not initiating movements in the price-level, will enable such movements as are initiated by other causes to proceed to greater lengths if the currency is inconvertible than if it is based on gold. It was explained in the last chapter

that, under the gold standard, an expansion of the monetary medium and a rise in the general price-level would lead to exports of gold, by which the movement would be spread over the whole of the gold-standard world. It is a corollary of this that a gold-standard country can, in the long run, expand its currency and raise its price-level only to the extent that all other gold-standard countries are doing likewise; any attempt to proceed at a greater rate than the average would be immediately checked by an export of gold and the depletion of the Central Bank's reserves.¹ But there is no such check on an inconvertible currency. A rise of the general price-level may, indeed, lead to a fall in the exchange value of the currency, but there is nothing in such a fall which will necessarily put an end to the process of expansion. As the automatic restraining influence of gold movements is absent when the currency is inconvertible, there is rather more risk that a rise or a fall of prices, once it gets started, will proceed unchecked.

None of these causes of instability is irremediable. If, when convertibility is suspended, the Government announced its determination to prevent any inflation of the currency, there is no reason why the price-level should either rise or fall. But inconvertibility makes such an inflation fatally easy, and in times of adversity hard-pressed Governments are liable to see in the expansion of credit and the printing of paper money an easy issue out of all their economic afflictions.

In general, however, inconvertibility and inflation are

¹ The imposition of tariffs enables a country to raise its prices relatively to those prevailing elsewhere without suffering a loss of gold. But when once this effect of the imposition of tariffs has worked itself out, the country's price-level will have to follow the movements of world prices. Permanent immunity from world price movements can only be secured by progressive increases of tariffs, which would ultimately kill all trade between the country in question and the rest of the world.

But an inconvertible currency is not necessarily unstable.

logically distinct and though it is difficult to have any considerable degree of inflation without inconvertibility, the recent experience of Great Britain and other countries shows that it is possible to have inconvertibility without inflation. Before we can generalise about prices in conditions of inconvertibility, therefore, we must distinguish between two possible alternatives. The first case is that of an inconvertible currency when there is no deliberate attempt to induce inflation in order to simplify the fiscal problem of the State, and when the inherent tendencies towards instability are steadfastly combatted. In these circumstances, the theory outlined in the last chapter will apply, with the proviso that the volume of the monetary medium is not even indirectly dependent upon the supply of gold, but is under the complete control of the monetary authorities, that is, the State and the Central Bank.

In the second case, when, under the pressure of the financial needs of the State, the volume of the currency is being expanded and prices are consequently rising, the circumstances are somewhat different. In these conditions it will still be true that the price-level is determined by the volume of the circulating medium, by the velocity of its circulation, and by the volume of transactions to be performed. But it will no longer be true to make the first approximation, which is valid in more settled conditions, that the price-level tends to fluctuate with the volume of money in existence. For when the public comes to appreciate that the rise in prices and the fall in the value of money are likely to continue, they will be anxious not to hold their money for longer than is absolutely necessary, but will hasten to exchange all of it for something which is not constantly shrinking in value. In other words, the velocity of circulation will increase, and prices will rise faster than money is printed. But the rise of

prices, by increasing the expenses of the Government, will still further increase the deficit in the Budget, which was the original cause of the inflation, and will make it more than ever necessary to print more money. Thus the vicious circle revolves. In some Central European countries after the war, this process was carried to almost unbelievable extremes. In Germany, for instance, the value of the mark fell to one billionth of its former value, and prices rose by a corresponding proportion. The monetary system collapsed, and it was necessary to introduce an entirely new currency, the value of which was kept stable in terms of gold, before order could be brought out of chaos.

Much of what has been said above of inconvertible currencies applies with equal force to the international gold standard which was adopted by most of the countries of the world between 1924 and 1928, only to be shattered by the events of 1931 to 1933. During this period the chief currencies of the world were convertible into gold, and the rates of exchange were consequently fixed. But many of the elements of instability which have been described as inherent in an inconvertible currency were also present. One of the main differences between this resurrected gold standard and the conditions which prevailed before the war was that gold coins, for reasons which are explained in Chapters X and XI, were nowhere restored to general circulation. Before the war, when gold coins constituted the major part of the circulation and, conversely, the major part of the monetary gold stock of the world was circulating in the form of coin, an import or export of gold automatically affected the volume of the circulation. When gold was imported it was in all probability immediately coined and placed into circulation. And when it became profitable to export gold, the easiest method was to withdraw gold coin from circulation.

The post-war gold standard had many of the features of inconvertibility.

The volume of the currency, which, with the size of the credit structure built upon it, constituted the most important item in the equation of exchange, was thus very largely determined by the free interplay of economic forces, which caused gold to move from country to country. No attempts were made to regulate either the volume of the currency or the velocity of circulation or, apart from relatively moderate protective tariffs, the volume of transactions. The price-level was therefore the free resultant of these forces.

All these conditions were radically changed in the post-war period. The volume of money was not automatically determined, but was fixed by each State. The volume of transactions was restricted, and natural readjustments prevented, by an ever-growing array of protective tariffs. Moreover, even monetary readjustments were controlled and frequently impeded. Before the war an outflow of gold would automatically reduce the volume of the currency and lower prices, while an import of gold would pass directly into circulation and raise the price-level. But in the conditions of the post-war gold standard, gold when imported did not automatically increase the circulating currency but was lodged in the reserve of the Central Bank, and the extent of its influence upon the volume of currency and credit in circulation depended entirely upon whether or not the Central Bank regarded the increase in its reserve as a signal for lowering its discount rate, making money cheap and expanding credit. Similarly, the Central Bank might choose to ignore entirely an export of gold, which would thus have no effect in restricting credit and making for lower prices.

There were several reasons why Central Banks in the period of the post-war gold standard preferred to prevent movements of gold from having their normal effect. In Great

Britain, which was, on the whole, losing gold, a restriction of credit would have deepened the already existing depression of trade and added to the numbers of the unemployed. The United States, which was, on the whole, gaining gold, was throughout this period under the influence of a plethora of credit, which in the end contributed to the wild boom in the security and real property markets in 1928 and 1929; and it was feared that any additional expansion of credit could not fail to do harm. Moreover, in both countries there were powerful sections of opinion demanding that prices be kept stable. Thus both countries prevented the movements of gold from having their normal effects, *i.e.* the effects they would automatically have produced before the war. Both countries preferred to ignore the fact that unless the underlying cause of the gold movements (namely, the lack of equilibrium between the price-levels of Great Britain and the United States) were removed by a fall of prices in the one country and a rise in the other, the flow of gold from London to New York would continue until the pound was driven off the gold standard.

Gold movements were prevented from having their normal effects.

There were many other complicating factors present during this period: the large Reparation and War Debt payments, for example, constituted a continuous strain upon the stability of the currencies of those countries which had to make the payments. Germany was the chief debtor, the United States and France the principal creditors. The smooth working of the gold standard demands that there shall not be a continuous movement of gold out of one group of countries and into another group, but that gold movements shall be an ebb and flow adjusting temporary disequilibria. The necessity of paying and receiving Reparation and War Debt payments, however, meant that there was a constant tendency for gold to accumulate in Paris and New York, as can be seen

from Table XI of Appendix C. As this movement did not result in a permanently lower price-level in the debtor countries and a higher price-level in the creditor countries—which would have facilitated the payment of debts by a stream of goods from the former to the latter¹—the complete disappearance of the gold reserves of the debtors could only be prevented by such temporary devices as large international loans.

Differences
between
the pre-war
and post-
war gold
standards.

There are thus two main differences between the pre-war and post-war gold standards. In the first place stability of the exchanges before the war represented an underlying balance of the economic structures of the gold-standard countries. Their price-levels were in rough equilibrium, their industrial progress was widely diffused, any temporary maladjustments were quickly smoothed out by small movements of gold and slight changes in the direction of international trade. After the war, however, the gold standard had to try to bring monetary balance and order out of a profound disequilibrium of prices, production and trade—and to do so, moreover, in spite of the fact that Governments by their tariffs and their Reparation and War Debts demands, and Central Banks by their policy of ignoring gold movements, did their best to prevent those adjustments from taking place which alone could make an international currency system permanently workable. Secondly, in the post-war period, restoration of the gold standard did not mean that the volume of money was to be determined by the free ebb and flow of gold; on the contrary the volume of the currency was subject to the most careful regulation in the determination of which the state of the gold reserve was only one among many considerations. In these ways, therefore, the gold-standard currencies of the period 1925 to 1931

¹ Rising tariffs in any case ensured that this did not happen.

are to be looked upon as a number of separate, individually manipulated, national currencies, temporarily linked together by convertibility into gold, rather than as sections of the universal currency, gold.

Hence, gold was largely used as an international commodity, its export or import being used to balance large surpluses or deficits in the trading accounts of nations—whereas its transfer should have had the effect of creating conditions under which these surpluses or deficits would cease to exist. Gold movements were consequently on an unexampled scale.

The monetary events of this period are therefore to be judged by the criteria applicable to inconvertible currencies, rather than by those of the pre-war gold standard. The difference, as has already been explained, is entirely one of emphasis, as the fundamental proposition which is the foundation of the "equation of exchange" is true in all circumstances. But the differences of emphasis are considerable. In the pre-war period, the volume of money, being largely dependent upon the amount of gold in the country, was not subject to conscious control, and the necessity for controlling it did not arise since the effects of its fluctuations upon the price-level, though they were considerable, were never cataclysmic. In the period since 1914, on the other hand, whether the currency has been convertible into gold or not, it has consisted of paper money, the amount of which is not automatically determined by outside forces and must consequently be subject to the fallible decisions of policy. For the sake of logical convenience, therefore, the distinction should be drawn not between those currencies which are, and those which are not, redeemable in gold, but between those where the volume of money and the price-level are determined by the free interplay of economic forces and those

where an attempt is made to apply conscious direction. This line of demarcation is drawn at the year 1914.

Since 1914,
cyclical
price move-
ments have
swamped
the long-
term trends.

There is another respect in which the period before 1914 differs from the two decades which have elapsed since the outbreak of the war. In the chapters of this book which deal with the history of prices from 1820 to 1914 little notice is taken of the cyclical year-to-year fluctuations of prices, with their alternations of good and bad trade. Those chapters are concerned with the causes of the underlying tendencies of prices, which can be isolated from the more erratic movements of the trade cycle. In the period that starts in 1914 it is no longer possible to draw this distinction. In the long stable era of the nineteenth century, price movements were so gradual that it was possible to have reasonably prosperous years even when the price-level was tending to fall. But in the post-war world price movements have been so rapid and so extensive that the long-period movement and the short cyclical movement have been merged into one swift cataclysm. The movement of prices has not been a factor in the background, making good years better and bad years moderate, or good years not so good and bad years worse; it has devastated the economic world and made many forms of business enterprise a matter of guessing at future prices rather than one of enterprise and hard work.

In these circumstances to explain the monetary causes of price movements is a far more complicated task. It is no longer possible to ignore the waves and concentrate on expounding the nature of the tides, for the waves have mounted so high that the tides are no longer perceptible. On the other hand, to embark upon a discussion of the causes of the trade cycle would lead us into a contentious field which is outside the scope of this book. The only possible compromise appears to be to make no attempt at generalisations

on the behaviour of money since 1914, but to give such explanations as appear appropriate when describing each particular movement. Much of what is known of the pathology of money consists merely of inferences from the events of the past twenty years. To attempt in these circumstances to make a clear distinction between deductive theory and historical verification would be an artificial complication. With this brief introduction, therefore, the reader must be referred to Chapters X and XI, which describe in some detail the monetary phenomena of the period between 1914 and the present day.

BIBLIOGRAPHICAL NOTE

The questions discussed in this chapter have been the material of controversy during the past decade and a half, and a full bibliography would be very lengthy indeed. Among the most valuable books are Professor Cassel's *Money and Foreign Exchange since 1914*, Mr. J. M. Keynes' *Tract on Monetary Reform* and his *Treatise on Money* (parts of which are much more advanced in treatment than the present chapter), the *Report of the (Macmillan) Committee on Finance and Industry*, and Mr. R. G. Hawtrey's *Currency and Credit*. Mr. D. H. Robertson's *Money* also touches upon several matters included in this chapter.

CHAPTER VI

1820-1849

PRICES FALLING

THE year 1820 is taken as the starting-point of this review, as it is the year when the Bank of England resumed payment of its notes in gold. The twenty years from 1800 to 1820 were a period of the greatest abnormality in every branch of the national life, and particularly in those that concern money and prices, and the available statistics do not permit of a sufficiently detailed analysis of the influences at work. These twenty years, moreover, cover the later stages of the Napoleonic wars, and the ups-and-downs of the price curve could not be discussed without entering into the history of the war and its effect on trade. We may, therefore, pick up the thread at a date when the more direct and immediate effects of the war had passed away.

Features
of the
period.

On the basis of Jevons's index number, which is reproduced on Chart I, prices appear to have fallen about 25 per cent between 1821-25 and 1846-50, or at the rate of 10 per cent per decade. There are peaks in the curve in 1825, in 1836 and 1839, and in 1847; but apart from these breaks, to which reference has already been made above (Chapter II), the price curve shows a continuous decline. It is unnecessary to delay over the detailed events of this period, the conditions of which are remote from those of the present day, but the broad influences affecting prices may be briefly reviewed.

Turning, in the first place, to influences affecting the Monetary amount of the circulating medium, the conditions (1) of conditions. the gold supply and (2) of alternative methods of making exchanges by means of credit currency must be noted. As regards gold, the red line on the chart shows that only very small quantities of the precious metal were being produced each year. Prior to 1810, Europe had received the greater part of its supply from the Spanish colonies of Central and South America. But during the wars of the French Revolution these colonies threw off the yoke of Spain, and fifteen years of civil war and internal disorder followed, during which period the mines were practically deserted and a great slump occurred in the output of the precious metal.¹ But during the 'thirties the Russian production began to increase, rising from £30,000 sterling in 1819 to £629,000 in 1829; £1,079,693 in 1839; and £3,824,638 in 1847—after which date the output remained fairly stationary for over twenty years. The Russian output, however, came too late to relieve the shortage of the world's supply due to the closing of the mines in Spanish America, and the Western world during this period endeavoured to make up for the deficiency by inventing various kinds of credit money. In England, however, the banking system was still in its infancy, and it was not until 1833 that the first London joint-stock bank was established. These institutions have subsequently provided this country with an enormous quantity of currency, but in the period under review their growth was not sufficiently rapid to neutralise the effect of the shortage of gold, though it is possible that the check to the downward movement of prices in the later 'thirties should be attributed to the

¹ Del Mar estimates that the output of gold and silver from Spanish America, which amounted to £7,200,000 a year prior to the Revolution, fell to £5,000,000 in 1825 and £4,000,000 in 1829 (Del Mar, *History of the Precious Metals*, chap. xviii).

development of the new bank money. There was, however, a very large gap in the currency to be filled up. During the Napoleonic wars the unregulated condition of private banking in this country had made it possible for private bank-notes to be issued in large quantities, against which the gold held in reserve was often quite inadequate. These private currencies rapidly diminished in the years we are now considering, owing to the failure of the firms which issued them, while the possibility of adding to the currency by such means was finally put an end to by the Bank Act of 1844. This statute also restricted the note issue of the Bank of England itself, by enacting that against any notes issued in excess of a certain sum (originally fixed at £14,000,000), gold coin or bullion should be held in the coffers of the bank to the full amount of the value of the notes issued. This provision prevented any further expansion of the note circulation unless there was a corresponding increase in the gold held in reserve.

With, therefore, a diminished supply of gold coming into the market,¹ and with little elasticity in other forms of circulating media, there was no way of expanding the currency to any great extent. The difficulty became less acute in the 'forties, partly on account of the Russian gold, which eased the situation, and partly on account of the credit currency which was gradually being evolved. But, on the whole, the monetary situation of the period does not show any great increase in the circulating medium.

Meanwhile trade, and therefore the demand for currency,

¹ It must be remembered that at this time very few countries besides England employed a single gold standard, and she was, therefore, peculiarly susceptible to changes in the world's supply of gold; though, on the other hand, the annual output was so small compared to the existing stock of the metal, that unless the demand for the use of gold had also increased, there would have been a very slight influence on prices from the slowing up of the production from the mines.

grew at a very rapid pace. It is true that the inventions and other changes of the industrial revolution had begun to stimulate production long before the end of the eighteenth century; but the growth of industry moved at an accelerating pace throughout the whole of the nineteenth century. A few particular events which hastened the rate of progress during this period may be recalled. The reforms of Huskisson in the 'twenties and of Peel in the 'forties relieved industry of the more vexatious and limiting provisions of the tariff; the growth of railways stimulated production, especially of those materials used for railway construction, and though the main effect of railways on industry as a whole must be looked for at a later date, the new means of transportation had an immediate stimulating effect on trade; even as regards foreign transport, improvements rapidly took place, though the repeal of the Navigation Acts came too late to affect prices during this period. The introduction of the telegraph and the penny post were also most important innovations of the period. The fall in the level of prices was thus caused by the failure of the currency to expand in proportion to the work which it was called upon to do.

Produce-
tivity
of industry
and com-
merce.

But in spite of the increase in production, the period was one of great discontent on the part of the working-classes, and it may naturally be asked why the poorer members of the community did not share more widely in the general prosperity. In the 'forties it is generally considered that the working-classes of the country were worse off than in almost any other period of English history, a fact which at first sight seems completely to refute the general presumption put forward in Chapter II, that falling prices are good for the working-classes. The explanation of this seeming contradiction is twofold. On the one hand, when we examine the state of the labour market we find that the disorganisation caused

The tend-
ency of dis-
tribution.

Two
reasons
for poverty
of the
period.

(i.) Condition of the labour market.

by the industrial and agricultural revolutions had not yet passed away. The population of England and Wales (see Appendix E) increased almost 50 per cent in the thirty years between 1821 and 1851, while an analysis of the census reports shows that the exodus from the country to the towns was still in full swing. The old industries which were being displaced (hand-weaving, for instance) naturally could not afford to offer high wages, while the new industries which grew up so rapidly did not, as might have been expected, cause the demand for labour to outrun the supply, for the women and young children of the towns were sent into the factories to tend machinery. This labour was, for the most part, exceedingly inefficient, judged by modern comparisons; but with a very low standard of living, it was often paid for at starvation wages. The effective organisation of labour under such conditions was impossible, and the workers were not in a position to make a successful fight for a higher standard of living. Subsequent experience has shown that highly-paid efficient labour is, in the long run, far more advantageous to the employer than sweated labour, but this proposition commonly needs to be proved by experience before it is acted on. Pressure from below is usually required before that change is made, and the working-classes in the 'forties were unable to bring such pressure to bear. Professor Bowley's summary of wage movements, reproduced below on p. 267, shows in fact that between 1810 and 1830 money wages were falling, and from 1830 to 1850 were practically stationary. A most important blow, however, was struck in the latter part of the period at this degraded system of industry by the Factory and Mines Acts of the early 'forties.

(ii.) Relative dearth of bread.

The other equally important consideration which prevented any improvement in the condition of the working-classes is the fact that, though prices as a whole fell during

these three decades, the commodities which fell most were not those consumed by the working-classes. Analysing the commodities included in Jevons' index number according to whether they fell more rapidly, less rapidly, or at the same rate as the average, we find that they fall into the three following groups:—

ANALYSIS OF THE FALL IN PRICES BETWEEN 1821-25 AND 1846-50.
(Average fall 25 per cent.)

Articles which fell more than the Average.		Articles which fell about the Average.		Articles which fell less than the Average	
	per cent		per cent		per cent
Dyes	. (- 64)	Metals	. (- 25)	Fodder	. (- 13)
Cotton	. (- 52)	..		Wheat	. (- 9)
Oriental	. (- 48)	.		Corn	. (+ 1)
Iron	. (- 46)	..		Oils	. (+ 8)
Tropical	. (- 39)	..			..
Fibres	. (- 36)	.			..
Timber	. (- 36)	..			..

Thus raw materials are found in the first two columns. Many of them fell owing to improvements in transport and to further penetration into Eastern countries, while iron fell faster than most other commodities owing to improvements in the method of smelting in the blast furnace.¹ But when wages are at a low level the working-classes have little to spend on anything except food, and we find that agricultural food-products were among those which fell less rapidly than the average or actually rose in price. This result was primarily due to the stringent Corn Law of 1815, which prevented the importation of wheat unless the average price in England was 80s. a quarter, the figure being lowered in 1823 to 70s. a quarter. This law, it is true, kept a very large area of the

¹ The chief change during the period was the invention of the hot blast by Neilson in 1828, which reduced the coal consumption per ton of iron at the Clyde ironworks from 8 tons 1½ cwts. in 1829 to 5 tons 3½ cwts. in 1830.

country under wheat, but the home production was clearly quite insufficient to provide for the growing needs of the population. The price of wheat, indeed, fell, for in many cases wages were too low to permit the people to buy bread. The demand was, however, large enough to prevent the price of wheat falling as fast as other commodities. Thus until the "Repeal" in 1846 the balance was most unfairly weighted against the working-classes, who obtained practically no advantage from the fall in prices.

To sum up, the thirty years succeeding 1821 saw a rapid increase in the nation's productive capacity which far outran the available means of exchange. But the consequent fall in prices failed to benefit the working-classes, owing to the disorganised state of labour and the fact that the tariff prevented a fall in the price of the commodity whose price most intimately affected the welfare of the working-classes.

BIBLIOGRAPHICAL NOTE

A general discussion of prices and the effect of currency changes during this period will be found in Tooke and Newmarch's *History of Prices*, vols. i. to iv. See also Porter's *Progress of the Nation*, sect. ii. chap. i., for a discussion of the influences affecting the price of agricultural products. A detailed description of the events during the crises of 1825, 1836-39, and 1847 will be found in the special chapters dealing with these booms in Levi's *History of British Commerce*. A very black account of social conditions in the 'forties will be found in Frederick Engels' *Condition of the Working Classes of Great Britain in 1844*.

CHAPTER VII

1849-1874

PRICES RISING

THIS second period is one of rising prices, but a glance at the curve will show that the rise was not continuous. According to Sauerbeck's figures the chief advance comes between 1848 and 1854, after which prices were stationary for more than a decade and a half, while a second, though smaller rise, occurs between 1870 and 1873. The explanation of the price movements of this period involves a discussion of the way in which increasing supplies of gold affect prices, and it therefore calls for a rather more detailed study than that given in the last chapter. Taking 1846 as the starting-point, ^{The new} it will be seen that the world's annual gold production ^{gold.} increased between six- and seven-fold within seven years, and, though it subsequently declined, the annual output—chiefly from Australia and California—remained some seven times as great as the average during the preceding period. At first this increased output found its way to England, France, and the United States, the table on the next page showing for these three countries how rapidly gold was coined in the few years following the discoveries.

The gold at the outset found its way to the Bank of England, whose total holding of bullion rose from £10,428,000 in 1847 to £20,587,000 in 1852, the increase being accompanied by a fall in the average rate of discount to £2 : 3s. per cent. But it soon passed on into circulation, the quantity of

gold in circulation and in the hands of banks other than the Bank of England rising, according to the estimate of Mr. William Newmarch, from about £46,000,000 in 1844 to about £75,000,000 in 1856. After this date the absorption of bullion by this country seems to have been less rapid, for the flood of gold was diverted from Europe and America to India and the East—the traditional sink and reservoir of the precious

COINAGE OF GOLD IN ENGLAND, FRANCE, AND THE UNITED STATES.¹

	England	France	United States
1848	£2,452,000	£1,600,000	£755,000
1849	2,178,000	1,080,000	1,800,000
1850	1,492,000	4,600,000	6,400,000
1851	4,400,000	9,600,000	12,523,000
1852	8,742,000	1,040,000	11,370,000
1853	11,952,000	13,200,000	11,043,000
1854	4,152,000	20,480,000	10,420,000
1855	9,008,000	16,417,000	8,233,000
1856	6,002,000	20,334,000	6,000,000
<i>Annual Average.</i>			
1848-49	£2,315,000	£1,340,000	£1,277,500
1850-56	6,535,428	12,238,714	9,427,000

metals. But for many years this country continued to import more than she exported, the foreign trade statistics showing that in the fifteen years 1858-73 inclusive the imports were larger than the exports by £66,675,000, or about £4,445,000 a year. Of this large sum comparatively little appears to have gone into the reserve of the Bank of England, and the greater part must have been retained in circulation on

¹ These figures do not represent "new gold" alone, for the coins struck by the mints in any one year always include a certain number of "recoinages"; but the greater part of the increase must of course be attributed to fresh supplies from Australia and California.

account of the higher level of wages and prices, or used by trades which use gold as a material of production.¹

We may here consider for a moment the way in which the new gold came to affect prices. When the gold had found its way to the reserve of the Bank of England the rate of discount fell to nearly 2 per cent, for the accumulation of bullion in the hands of the bank meant that the central institution had abundant funds to lend to intending borrowers; loanable capital became cheap, and acted as a stimulus to trade. But meanwhile another, and, in this case, more important influence had been at work, for the gold-mines turned out much larger sums than ever found their way into the coffers of the Bank. These sums put an enormously increased purchasing power into the hands of the gold-seekers, most of whom were persons of a very modest social standing before they went out to seek their fortunes in the goldfields. The first pioneers were soon followed by a migration of all sorts and conditions of men, some of whom actually worked in goldfields, while others gained a livelihood by supplying the various needs of the gold-diggers. These growing communities having in their hands the means of paying for commodities, and desiring the kind of goods which Europe (and England in particular) was able to supply, created a demand for manufactured commodities, which gave a direct fillip to trade at home. The boom thus originated was assisted in its course by the large amount of bullion flowing into the country. Other influences then occurred to help the rise of prices. The succeeding years were disturbed by the Crimean War and later by the Indian Mutiny, both of which raised the price of all commodities used in war. From 1853 to 1856 the harvests were deficient, and prices of food and raw

¹ See Appendix B on the proportion of the world's gold which is used in the arts.

materials rose so high that large quantities of currency were required to pay for them; finally, large numbers of new enterprises were started under the stimulus of abundant loanable capital and an optimistic spirit of expanding trade. Under such a combination of circumstances Tooke and Newmarch considered that a crisis might have been expected any time after 1853, but that it was postponed by the arrival of gold. It came eventually, however, in 1857, and the upward movement of prices and the absorption of gold by this country ceased for the time being. It is to be observed, however, that when the slump came, prices did not fall to their old level, and large quantities of the new gold remained in circulation.

A secondary effect of the migration to the goldfields may be noted here as having had some effect upon prices. In America, many persons who had recently settled on the land were tempted away to California in the hope of making large fortunes. So great was the excitement that crops were sometimes left standing in the fields for want of labour, while land was allowed to go out of cultivation. As this check to production occurred just at the time when Europe's demand for cereals and raw material was increasing, it acted as yet another spur to the upward movement of prices.

Expansion
of credit
money.

But before we come to the general influences affecting the production of commodities, reference must be made to the growth of credit currency in England. In 1858 the provisions of the Limited Liability Acts of the previous year were extended to Banking Corporations, which had originally been excluded from its scope. This change marked a stage in the rapid and continuous growth of joint-stock banking in England, which had begun with the foundation of the London and Westminster Bank in 1833. There are no statistics available for estimating the extent of this growth or the addition which the banks made to the circulating

medium; but there is little doubt that these institutions grew in importance at a very rapid rate in the 'fifties, and perhaps even more rapidly in the 'sixties, when new enterprises of all kinds were being started; for such undertakings created a demand for banking facilities and for means of obtaining capital. These needs were partly met by the banks and partly by financial houses dealing in trade and commercial bills. The latter institutions played an important part in the boom which succeeded the passing of the Companies Act of 1861, and though the whole system received a severe shock from the crisis which followed the failure of the famous bill-brokers, Overend Gurney & Co., in 1866, the effect of these five years was to familiarise the public more generally with the use of credit instruments, and to spread such media of exchange into new and unwonted uses. These developments all helped to swell the total currency in the country.

As regards the general conditions of production, it has been mentioned that the initial effect of the new gold was to stimulate an increased production of manufactures. This influence came at a favourable moment, for prices of raw materials had fallen to a low level, while the reductions of the tariff by Peel in 1842 and 1844 were carried a stage further by Gladstone, who in 1853 swept away the last of the duties on raw material. In the 'sixties the expansion of trade was greatly assisted by the passing of the Companies Act of 1861, which simplified the method of floating joint-stock companies. Incorporation was in future to be obtained by a certificate from the registrar of joint-stock companies, which would be granted to any seven persons who complied with the regulations and furnished certain necessary details as to the object, capital, and officers of the company. This Act, which superseded the much more cumbersome method

Rapid
increase in
production
of wealth
at home
and abroad,

of incorporation by Act of Parliament, was followed by a great outburst of company promotion; not only were new concerns floated, but there began a movement for the conversion of private concerns into joint-stock companies, which has continued right up to the present day. The joint-stock principle had formerly been practically applied only in the cases of banking, railway and insurance companies, and those concerned with foreign trade. With the passing of this Act, the principle was extended to almost all branches of industry and commerce. Transport facilities, which had been in their infancy in the first half of the century, also made enormous strides. The size of ocean steamers began to increase rapidly, and iron ships began to displace wooden ones, both in the navy and in the mercantile marine, the climax being reached with the building of the ill-fated *Great Eastern* in 1858. Improvements in the arts of manufacture at home were thus accompanied by improvements in transport, which opened up new territory in all parts of the world, and thus increased the world's available supply of agricultural products. The figures of production in Appendix D also show how rapidly the output of coal and iron increased during this period, which may well be regarded as the beginning of the "Iron Age". A landmark in the industrial history of the period is the introduction of the Bessemer process of steel smelting in 1859.

though
much
wealth was
destroyed
by wars.

A most important influence in the opposite direction was the fact of numerous great wars during the 'fifties and 'sixties which not merely kept men from productive occupations but actually caused a considerable destruction of property. "The wars had taken men away from the workshops, had killed some, and unfitted others for their work; they had diverted industries to supply the materials of warfare, and had destroyed vast quantities of commodities of all

kinds.”¹ When it is remembered that the period includes among others the Crimean, Austro-Prussian, Franco-Prussian, Danish and Italian wars in Europe, and the Civil War and the Mexican campaigns of Napoleon III. in North America, it is obvious that war was an important consideration during these twenty-five years.

During the 'sixties, however, the increased production of goods appears to have kept pace with the increase in currency, for there is a halt in the upward movement of prices, which was not renewed until the boom of the early 'seventies. The cotton trade was a notable exception, it is true, for between 1862 and 1866 the American Civil War cut off Lancashire's source of material, and raw cotton rose to famine prices. Great distress was thereby caused in the cotton towns of the North, and though the continued shortage stimulated cotton-growing in India and other countries, the emergency supplies from such sources were quite inadequate to make good the deficiency. The cotton famine naturally had an effect on the demand for all textile materials which could be used as substitutes, and the price of wool and flax rose rapidly. But as soon as the war was ended, prices fell again almost as rapidly as they had risen, though not quite to their old level.

Between 1869 and 1874 the boom in trade carried prices up to a level which had not been reached for fifty years. This boom constituted a period of most extraordinary and almost universal inflation of credit and business as well as of prices, which has been variously attributed to excessive speculation, to excessive and injudicious construction of railroads in the United States of America, Central Europe, and Russia, to the opening of the Suez Canal, and to the Franco-German

¹ Article by Dr. A. Marshall in the *Contemporary Review* for March 1887, on "Fluctuations in Prices and the Precious Metals".

War. A quotation from the London *Enquirer* of February 1873 will illustrate the effect on one of the industries most concerned:¹—

“The progress of events during 1872 will not soon be forgotten by engineers. The position assumed by the working-classes, and the unprecedented demand for iron and machinery, combined to raise the cost of all the principal materials of construction to a point absolutely without parallel, if we bear in mind that the advance of prices was not localised, but universal, and that the duration of the rise was not limited to a few weeks or months, but, having extended already over a period of some months, shows little sign at this moment of any sensible abatement.”

In Germany the payment of the war indemnity by France produced such an abundance of capital that all manner of new industrial and financial undertakings were projected, and hundreds and thousands of men and women were induced to desert agriculture and seek employment in trades. Similar evidences of unbounded activity appeared in the United States until the crisis which began in September 1873. We are not concerned, however, with the history of this unprecedented and world-wide boom, except to indicate that this period of currency expansion and rising prices closes with an enormous increase in the world's productivity.

Relative
price
changes.

Turning to the changes of particular commodities over the whole period, we may make a classification of the articles included in Sauerbeck's index number on the same principle as that adopted in the preceding chapter.

This analysis of relative price changes shows that only five commodities actually fell between the two periods in question, while a sixth—copper—remained unchanged. Wheat, as a result of the repeal of the Corn Laws and of

¹ See also David A. Wells, *Recent Economic Changes*, chap. i.

the extension of transport facilities noted above, is found among the commodities which rose less than the average.¹

ANALYSIS OF THE RISE IN PRICES BETWEEN 1846-50 AND 1871-75.
(Average rise 25 per cent.)

Articles which rose less than the Average	Articles which rose about the Average.	Articles which rose more than the Average.
per cent	per cent	per cent
Rice . . . (- 12)	Jute . . . (+ 20)	Mutton . . (+ 34)
Sugar . . . (- 7)	Linseed . . (+ 22)	Butter . . . (+ 40)
Timber . . . (- 6)	Lead . . . (+ 22)	Silk . . . (+ 40)
Maize . . . (- 4)	Oats . . . (+ 24)	Tin . . . (+ 46)
Flour . . . (- 3)	Tea . . . (+ 25)	Cotton . . . (+ 52)
Copper (unchanged)	Bacon . . . (+ 25)	Beef . . . (+ 55)
Potatoes . . (+ 1)	Barley . . . (+ 25)	Pig-iron . . (+ 60)
Tallow . . . (+ 4)	Iron bars . . (+ 30)	Leather . . . (+ 66)
Nitrate . . . (+ 4)	..	Wool . . . (+ 70)
Flax . . . (+ 5)	..	Hides . . . (+ 75)
Wheat . . . (+ 6)	..	Indigo . . . (+ 86)
Pork . . . (+ 10)	..	Coal . . . (+ 100)
Oil . . . (+ 10)	..	Coffee . . . (+ 100)
Hemp . . . (+ 12)	..	..

¹ *Note on Wheat Prices from 1820 to 1875.*—It has sometimes been noticed with surprise that the general level of corn prices did not fall in the two decades succeeding the Repeal of the Corn Laws in 1846; statistics of British wheat, in fact, show that though the price of corn fluctuated very considerably at certain times between 1820 and 1874, it is not obvious that the general level fell to any very appreciable extent. The average for the 26 years 1820-46 is, indeed, higher than the average for 1846-74, for there are more low-price years in the latter period than in the former. But the fall is not so marked as might have been supposed, considering the stringency of the Corn Law.

On this point, however, the preceding chapters throw some light, and two points may be made in this connection. In the first place, though the price of wheat did not actually rise in the period preceding the Repeal, prices remained steady in a period of falling prices. In other words, the relative value of wheat rose. On the other hand, in the second period, prices in general rose, whereas the price of wheat remained stationary or actually fell: in other words, the relative value of wheat fell.

In the second place, the importance of the Repeal is shown by the fact that though consumption increased enormously prices did not rise. Following Porter's assumption of a consumption of 6 bushels per head throughout, the average yearly consumption of the country would appear to have increased from 11,800,000 quarters in the decade 1821-30 to 14,000,000 quarters in 1841-45, and 20,200,000 quarters in 1871-75. Thus, the increase of consumption was very great in the period succeeding the Repeal, even on this optimistic assumption,

Animal products tend to raise the average.

As regards the commodities which tended to raise the index number during this period, no less than six were animal products. This tendency for animal produce to remain above the general level of prices is due to the fact that there is a limit to the number of cattle, sheep, etc., that may be profitably reared on a given area, unless the methods of farming are radically changed; and in any case such changes take time. The opening up of new cattle-raising territory may, of course, add considerably to the supply, but before it is possible to extend the limits from which cattle may profitably be brought to market, greater facilities for quick transport are required than were available in 1870. Until about 1880 this difficulty in adding to the supply of animal products kept such commodities from falling fast in periods of falling prices; while, when prices were advancing, animal products rose faster than the average.

Pig-iron and coal.

As to the other commodities which tended during the period to raise prices, pig-iron and coal have already been referred to above. The boom of 1871-74 was primarily an iron, steel, and coal-trade boom, for the stimulus to produc-

and it is almost certain that the consumption per head must have risen throughout this period. But the home supply could never have met the growing demand which came as the result of better wages and increasing population and the rise in the standard of living. If, therefore, the Repeal had not taken place in 1846, the price of wheat must have risen much faster than other prices during the period of rising prices. The tremendous pressure of the demand upon the scanty wheat resources of this country in the early part of the century is shown by the high relative value of wheat per quarter compared with barley and oats in, say, the 'twenties, compared with the relative value of these crops eighty years later or at the present day.

GAZETTE AVERAGE ANNUAL PRICE OF WHEAT, BARLEY, AND OATS.

	Wheat.	Barley.	Oats
1821-1830 . . .	57/6	32/6	23/6
1901-1910 . . .	26/10	24/6	18/-
Percentage Fall . .	53%	25%	23%
Cereal year 1932-33	22/-	40/-	24/-

tion which was imparted by the development of the 'fifties and 'sixties chiefly took the form of a demand for railways and ships. The price of cotton, which is also in this group, Cotton. had not yet fallen to its old level after the American Civil War, while in the case of tin and indigo the upward move- Tin, indigo. ment indicates a big extension of the demand for commodities whose supply was not capable of immediate expansion.

Summing up the effects of the new gold, Tooke and New- Effect of march wrote that the discoveries were not merely to be new gold regarded as a change in the amount of the circulating in 'fifties medium, but that the ultimate results were to be looked for was to rather in the increase of productivity which these discoveries stimulate industry. stimulated. "It is manifest," they said, "that the real and vital changes which have taken place are an addition to the real wealth of the world by means of greater production and active enterprise, and that the elements of circulation and price have so far not been ultimate results, but inferior and intermediate agencies employed." The gold itself, they said, was not an enjoyable commodity, except in so far as it was used in the arts, but they quoted with approval Adam Smith's analogy between the circulating medium and roads or other means of communication. Such products of civilisation are not valuable for their own sake, but the building of highways and railways ultimately leads to an increase in the world's wealth because of the facilities for production which they encourage; it is the same with any improved circulating medium which is, as it were, a highway to commerce. This analogy contains an element of truth, for that country is severely handicapped whose currency is in an unsatisfactory condition, is discredited, or is unstable in value. But the usefulness of a circulating medium depends rather on quality than on quantity, and an increase of currency beyond the

requirements of trade produces a change in the value of the standard which may bring serious evils in its train.

Distribu-
tion of
wealth.

Wages and
prices.

Finally, there remains the question of distribution during this period of rising prices. According to Professor Bowley, money wages between 1852 and 1870 were rising fast, and for the three years 1870-73 rose still more rapidly. This conclusion is indicated by all the statistics of wages that are available, and it even appears that during the greater part of the period the rise in wages outran the rise in prices, so that on the whole there was an increase in the purchasing power of the earnings of the working-classes.

A reference to the above analysis of commodities, moreover, shows that food products, with the exception of meat and butter, are to be found among those whose price was stationary or rising only a little; whereas the rapidly rising commodities, such as coal, iron, cotton, indigo, and tin, are, with the exception of coal, all materials used mainly in the earlier stages of production, and have a comparatively indirect effect upon the purchasing power of the working-classes. Thus the relative price changes of the period, thanks largely to the removal of the last vestiges of the tariff and the abolition of all restrictions on transport, were in favour of the consuming classes of the country. At the same time the brisk demand abroad for British products, and especially for iron and steel manufactures, raised the price of these commodities and produced a rapid advance of wages. While the population of England and Wales rose from 18 millions in 1851 to 20 millions in 1861 (a rise of 11 per cent in the decade), and 22 $\frac{3}{4}$ millions in 1871 (a rise of 13 $\frac{3}{4}$ per cent), the total wages-bill of the nation, as estimated by Professor Bowley (Appendix E), rose between 1861 and 1871 from £300 to £390 millions (30 per cent), reaching £485 millions two years later.

With the price of food remaining almost unchanged, this rapid increase in the wages-bill of the nation left a considerable margin available for other expenditure. Savings-bank deposits increased at a great rate, the consumption per head of tea, sugar, and other common commodities rapidly rose, while the great working-class friendly and benefit societies and the National Trade Unions, formed on the model of the Engineers' Society, steadily grew in strength and built up large reserves from the weekly contributions of their members. The Factory and Mines legislation, which had marked the closing years of the preceding period, meanwhile had the effect of modifying the competition of cheap unskilled labour. Thus the expansion of trade now offered the working-classes an opportunity of raising their standard of life, the legislation of the period being favourable to this end, instead of being in the interests of a single class, as had been the case in the first half of the century. The workers were thus in a much more favourable bargaining position than before, and succeeded in obtaining a considerable share of the increasing productivity of the nation.

It is true that other classes shared this prosperity to an equal or perhaps greater extent, for though it is difficult to make a direct comparison between wages and profits at so remote a date as 1860, Professor Bowley's calculation, quoted below on p. 270, indicates that profits rose faster between 1860 and 1874 than the total wages-bill. This result might indeed have been expected, for profits in the early 'seventies were exceedingly high, especially in the iron and steel and transport trades. Nevertheless, the condition of the working-classes improved more rapidly than ever before during these years; and it cannot therefore be said that a period of rising prices is necessarily always bad for employees, for when it is accompanied by a great increase in the productive power of

Consumption and other indications of a rising standard of living.

Profits.

industry, there will sooner or later be a diffusion of these benefits among all ranks of society. It has already been seen, however, that the increase in productivity was the real source of benefit, and that this industrial advance cannot be entirely or even mainly attributed to the gold discoveries. Rather must we look to the liberation of commerce and industry by the "tariff reform" of the period; to the progress of science, and especially of metallurgical science; to the extension of the uses of machinery, and to the development of transport. The gold discoveries are only responsible for the initial stimulus to this industrial development.

BIBLIOGRAPHICAL NOTE

Tooke and Newmarch, *History of Prices*, vol. vi., discuss in detail the operation of the gold discoveries on prices, and the distribution of the new gold among the various countries of the world. The statistical measurement of the changes of the period is discussed in several of the essays in Jevons' *Investigations in Currency and Finance* (see especially Essays iii. and iv.). An account of the material progress of the working-classes is given in an essay by Sir Robert Giffen, *Economic Enquiries and Studies*, vol. i. p. 382 *et seq.* See also some of the *Essays in Political Economy*, by J. E. Cairnes, which contain an excellent discussion of the way in which new gold affects different commodity prices in various countries.

CHAPTER VIII

1874-1896

PRICES FALLING

IN this period, as Chart I clearly shows, prices fell rapidly, declining, in fact, by some 40 per cent. The curve is broken in 1880, and again in 1889-91, but these temporary changes in its general direction need not detain us. Forty per cent in less than three decades is a much more rapid decline than that which occurred in the first half of the century. So great an alteration in values obviously involved economic disturbance; the more so, as certain things fell much more rapidly than others, and thus altered relative prices. The change of level was accompanied by numerous signs of industrial, commercial, and agricultural depression, of which the fall in prices was generally regarded as the prime cause. Sir Robert Giffen stated, for example, in an article in the *Contemporary Review* in 1885, that "it is clearly unnecessary to assign any other cause for the gloom of the last year or two. . . . The change is more like a revolution in prices than anything which usually happens in an ordinary cycle of prosperity and depression in trade." The accompanying commercial depression was as general as the boom which preceded it, and naturally all sorts of reasons were put forward by way of explanation. In the investigations by the United States Commissions the causes suggested by witnesses are classified under 180 heads, while the opinions expressed before British Commissions were almost as divergent. "Nearly

General survey of the depreciation.

Alleged causes.

all investigators", wrote Mr. David Wells, "are agreed that the long continued and widespread depression of business is referable not to one but to a variety of causes . . . and among such causes the following are generally regarded as having been especially potential: 'over production', 'the scarcity and appreciation of gold', or 'the depreciation of silver through its demonetisation', 'restrictions of the free course of commerce' through protective tariffs on the one hand, and excessive and unnatural competition caused by excessive foreign imports, contingent on the absence of 'fair' trade or protection on the other; heavy national losses, occasioned by destructive wars, especially the Franco-Prussian War; the continuation of excessive war expenditure; the failure of crops; the unproductiveness of foreign loans and investments; excessive speculation and reaction from great inflations; strikes and interruption of production consequent on trades unions and other organisations of labour; the concentration of capital in few hands, and a consequent antagonising influence to the equitable diffusion of wealth; excessive expenditures for alcoholic beverages, and a general improvidence of the working-classes. A Dutch Committee in 1886 found an important cause in the low price of German vinegar. In Germany in 1886-88 the continuance of trade depression has been assigned in a great measure to the 'inflammable condition of international affairs' and to 'looming war'; although the great decline in the price of beetroot sugar, and the 'immigration of Polish Jews' are also cited as having been influential."

The points mentioned in this catalogue, many of which sound familiar to-day, are of very varying importance, influences of a temporary or local character being placed side by side with those which are more permanent in their effect, and it is evident that it would be out of place to enter

into a discussion of them in detail; but they have been quoted here as illustrating the widespread interest which was aroused in the matter during these years of declining prices.

Following the method of the previous chapters, some of the more important monetary and productive changes of the period will now be briefly sketched.

In the first place, these years saw a very great increase in the demand for gold. Immediately after the Franco-Prussian War, Germany determined to establish her currency on a gold basis, and a law to this effect was issued in December 1871. The gold standard was not actually introduced until 1873, but considerable importations of the precious metal took place immediately. In 1873 the total actually reached 55½ million pounds sterling. Secondly, the United States began to draw gold from Europe in 1878. A law had been passed which was to come into force the following year making the inconvertible Government bank-notes, which had been issued during the Civil War, convertible into gold at the United States Treasury. This resumption was followed by a very large extension of the use of gold, and a country which had formerly been one of the chief sources of supply began to reabsorb some of the world's gold. This is clearly shown in the table on the next page, which compares the balance of gold imports and exports from 1868 onwards. In the first ten years of this table the United States added large sums to the world's supply. But from 1877 to 1887 she became an importer.

Monetary
changes
Demand
for gold.

Even more striking are the statistics showing the increased circulation of gold and gold certificates,¹ which rose from

¹ Gold certificates are notes issued against an equivalent amount of gold deposited in the Treasury. They are, therefore, not to be classed as paper money, which economises the use of gold, but simply save carrying about the quantity of gold coin. An increase of gold certificates in circulation involves an exactly proportionate increase in the Treasury reserve.

25 million pounds sterling in 1879 to 101 millions sterling in 1890.

BALANCE OF U.S.A. IMPORTS AND EXPORTS OF GOLD.

{ + = balance of imports.
 { - = balance of exports.

	Average Annual Balance	Total Balance.
1868-72	- £8,350,000	- £41,750,000
1873-77	- 3,780,000	- 18,900,000
1878-82	+ 7,180,000	+ 35,900,000
1883-87	+ 2,040,000	+ 10,200,000
1888-92	- 6,380,000	- 31,900,000

Large, though less important, demands also arose from other European countries and from India. The importance of these changes can hardly be over-estimated; for whereas fifty years before the greater part of the world's commerce had been done on a silver basis, by the end of this period gold had become the standard of value in all the most important commercial countries.

Dwindling
gold
supply.

Meanwhile, it is evident from the chart of the world's gold production that there was a falling off in the supply from the mines. Compared with the annual yearly production of £27,815,000 in 1851-55 and £27,207,000 in 1866-70, the production in 1881-85 only amounted to £20,805,000—a fall of about 35 per cent. Thus the amount of new gold which came into the world's market fell very rapidly at the time when a large and increased demand was arising from various sources. The supply of gold from the mines is, of course, in any one year only a small part of the world's available stock, and it is not necessary that the new supply should be maintained at a high rate in ordinary times. But at times when gold is being put to new uses, if prices are to be kept up, the

gold supply, taken in conjunction with the paper currency and credit money which may be built upon it, must expand in proportion to the work it has to do, except in the unlikely event of a permanent increase in the frequency with which money changes hands. Gold production in the 'seventies began to dwindle just when the new requirements arose.

The general shortage affected the various countries in different ways. It has already been seen that Great Britain had imported large quantities of bullion in the decades preceding 1870; but in the succeeding twenty years, in spite of the growth of population and trade and the development of banking, imports only exceeded exports by £25,710,000, or £1,285,500 a year. This sum had not only to cover the requirements of a steadily increasing volume of trade, but had also to make good wear and tear of the existing coinage, and to provide material for those trades which use gold for productive purposes. During the whole of this period the reserve held in the coffers of the Bank of England showed no increase at all—a sharp contrast to what happened in the cases of the Reichsbank, the Bank of France, and the United States Treasury, all of which increased their bullion holdings in connection with the establishment of their currencies on a gold basis, or in order to strengthen the foundations of their respective credit systems.¹

During the same years the deposits of joint-stock banks in England showed a threefold increase from £133¼ millions sterling to £390¼ millions, and though some of this increase is

Credit
money

¹ This result is attributable to the fact that the Bank of England was in this period the only open market for gold in the world. For whereas the Bank of France, the Reichsbank, and the United States Treasury all employed means for holding on to their bullion reserves when there was a shortage of gold in the market, the Bank of England reserve could always be drawn upon to any extent—its only protection being the raising of its rate of discount. The advantages to the commercial world of the open market policy were, however, so great that its expediency was never seriously called in question.

to be explained by the absorption of private by joint-stock banks, the figures are large enough to indicate a considerable addition to the possible credit circulation. This period, in fact, witnessed the most rapid expansion in British joint-stock banking history, in spite of the shock administered to the whole system by the failure of the City of Glasgow Bank in 1879. Deposits of German banks also increased greatly during the period, but the total was a much smaller one than in this country, and a corresponding growth in German banking statistics must be looked for at a rather more recent date. American banking also increased rapidly, but not nearly so fast as the gold currency circulation of the country, which to a considerable extent even displaced bank-notes in circulation. It thus appears that Great Britain substituted credit instruments for gold to a greater extent than other commercial countries.¹

On the whole, though there was this expansion of banking, especially in the United Kingdom, its influence was quite overshadowed by the absorption of gold by France, Germany, the United States, and India, the last-named country having continued to exhibit a capacity for swallowing up almost unlimited quantities both of gold and of silver. In all these countries, in spite of expanding commerce, credit money still played a comparatively unimportant part.

It has frequently been argued that the low rate of interest which prevailed, together with the fact that the combined bullion reserves of the leading countries of the world increased during these years, are signs that there was no lack of gold. But over a considerable period of years the rate of

The gold
shortage
and the
rate of
interest.
•

¹ That fact made it very difficult at times for the Bank of England to hold on to the comparatively slender store of gold which it held. Time after time the *Economist Commercial History* of the year records that the central institution had lost control of the market, which had been flooded with floating capital, and being unable to make its discount rate effective, had lost some of its gold.

interest is dependent upon the relation between the volume of saving and the demand for capital. In this period the falling cost of living enabled many people to increase their savings, while the comparative decline of profits reduced the demand for fresh capital. Falling prices are, indeed, commonly associated with a low rate of interest, which is not necessarily incompatible with a relative shortage of the precious metal. The test of the sufficiency or otherwise of the gold supply is the relative levels of the bank rate of discount and the general rate of interest on loanable capital (as indicated by the yield on approved security) over long periods. Both may be low, but if the former is consistently above the latter it indicates a shortage of gold.

There are, however, two sides to the price equation. The annual addition to the world's gold, which was threefold greater in the 'eighties than it had been before the gold discoveries, and the fact that bullion reserves increased during the period, prove nothing until it is known whether there was or was not a greater increase in the number of business transactions.

In this connection, it may first be noted that a significant feature of the period under review was the increase in commodities from distant lands. Trade of such a kind involves a much greater use of currency than trade in goods which are consumed near the place of origin, for every time a commodity changes hands metallic currency or a credit document of some kind must be given in exchange, and goods on their way from a distant farm in, say, Australia change hands a number of times on their way to market. Thus, as business became more world-wide, the number of business transactions increased much more rapidly than the actual output of commodities.

As regards actual production, it appears that during the

'seventies, 'eighties, and early 'nineties the expansion in the world's output of all kinds of commodities far outran that of any previous period in history. While the New World began to flood European markets with food products and raw materials, the arts of production made enormous strides; manufactures were, moreover, stimulated in both Germany and the United States by the opening up in both countries of new sources of iron and coal—a development which made these countries more industrially independent of Great Britain than they had previously been.

Relative
prices.

But before referring to these changes in further detail it will be helpful to make here an analysis of commodities on the method previously adopted.

TABLE SHOWING RELATIVE CHANGES IN COMMODITIES BETWEEN
1871-75 AND 1894-98.

(Average fall 40 per cent.)

Articles which fell more than the Average.		Articles which fell to about the same extent as the Average		Articles which fell less than the Average.	
	per cent		per cent		per cent
Sugar .	(-58)	Copper .	(-43)	Pork .	(-33)
Petroleum .	(-58)	Flour .	(-41)	Oils .	(-33)
Soda .	(-54)	Linseed .	(-41)	Hides .	(-31)
Cotton .	(-54)	Jute .	(-41)	Beef .	(-29)
Tea .	(-54)	Hemp .	(-40)	Timber .	(-27)
Silk .	(-53)	Indigo .	(-40)	Bacon .	(-26)
Wheat .	(-51)	Flax .	(-39)	Butter .	(-25)
Wool .	(-50)	Potatoes .	(-39)	Mutton .	(-25)
Iron bars .	(-49)	Barley .	(-39)	Tallow .	(-24)
Pig-iron .	(-48)	Oats .	(-38)	Leather .	(-22)
Maize .	(-47)	Nitrate .	(-38)	Coffee .	(-10)
Tin .	(-46)	Coal .	(-38)		
		Lead .	(-37)		
		Rice .	(-35)		

Considerable light on these very great reductions in wholesale prices will be thrown by a survey of the expansion

of the world's production during the period. The greatest Sugar fall of all is seen to have occurred in the case of sugar, this being primarily due to the growth of the beet-sugar industry in Europe. Its development was, in the most important producing countries, consciously hastened by the policy of the various governments which gave bounties to the industry in one form or another. Beet-growing was recognised to be a valuable auxiliary to the usual farm products of the time, and seemed to afford some relief to the prevailing agricultural depression. But the international rivalry was carried to an extreme point in the desire to secure the custom of the open market, with the result that prices within the various tariff walls were kept up, while the bounties on exports drove down the price in non-protected markets. Thus the bounty system, superimposed on a rapidly increasing world's production, accounts for the fact that sugar fell 58 per cent in England, which was, of course, the greatest free market.

Petroleum, which shows an equal fall, is a commodity ^{Petroleum.} whose history is bound up with that of the Standard Oil Trust of America. Without discussing the question how far that organisation was responsible for the development which occurred, or what part transport improvements and methods of production respectively played in reducing the cost of placing oil on the market, it need only be pointed out that the oil-fields of the United States, which yielded 9,893,786 barrels in 1873, yielded 28,249,597 barrels in 1887—a threefold increase. Cotton, maize, and wheat are all ^{American} primary crops of the United States, and each of them shows ^{farm} the effect of the enormous expansion of territory which was ^{products.} brought within reach of European markets by the building of railways in the decade which followed the Civil War. In Appendix D some statistics of United States crops are given side by side with their estimated value, which show a

stupendous growth in the total amount produced, accompanied by a fall in the value per unit. It will perhaps help to put the various elements affecting prices in their right perspective when it is pointed out that, according to an investigation carried out by Powers in the state of Minnesota,¹ the value of farm crops *on the farm* in inland states actually rose per unit in the twenty years preceding 1895, but owing to the fall in the cost of freight to the seaboard, the producers could place their produce on board ship at a lower price than before, while retaining a larger sum as their own share. This, of course, damaged the position of the seaboard farmers relatively to their inland competitors. But though the fall in prices on the seaboard was considerable, it was even more severe in Europe, owing to the steady but rapid fall in the cost of carrying grain across the Atlantic. Thus the railway and shipbuilding mania, which had been so large a cause of the boom of 1870-74, became the leading factor in producing a subsequent decline of commodity prices.

Indian
products.

Wheat.

Tea.

It should be observed, however, that in the early 'eighties wheat from India played almost as important a part in hammering down prices as the supplies from the New World. The same country is also responsible for the fall in the price of tea, for it was during this period that Indian began to supplant China tea in the English market. Between 1879 and 1888 Indian exports of tea increased from 35 million lbs. to 113 million lbs., this extraordinary development being the result of a great investment of British capital in Indian tea plantations. A contemporary observer of these events remarks that "herein we have another striking example of the inability of unskilled labour and labour following old processes, even at extremely low wages, to contend against

¹ "The Purchasing Power of Gold", report by J. M. Powers to the Bureau of Labour, Minnesota, 1897.

intelligence and machinery, inasmuch as the English planter in India, by skilful cultivation and careful manufacture with machinery, is now able to place in Europe a tea of good quality and greater strength at a price which the Chinaman, with his old methods, producing an inferior article, cannot afford". Coffee meanwhile pursued an erratic course, and ended the century at much higher prices than prevailed during the 'eighties, this appreciation being attributable to a long series of small crops in Brazil.

Of the other commodities in this group, far the most important is pig-iron, to which a brief reference has already been made. The increase in production may in this case be illustrated from the evidence of Sir Lowthian Bell, who informed the Royal Commission on Trade Depression that between 1870 and 1884 the world's production of pig-iron increased 82 per cent. He also stated that the efficiency of a ton of pig-iron was greater when made into steel than when manufactured as of old into puddled iron. For example, a steel ship of 1700 tons required 17 per cent less in weight of pig-iron than an iron ship of the same dimensions, and was capable of doing 7 per cent more work. Similarly, steel rails on railways last some years longer than iron ones. Statistics of the growth of the iron and steel outputs of Great Britain, France, Germany, and the United States show that between 1870-74 and 1895-99 the total pig-iron output of the four countries rose from 11.6 million tons to 28.2 million tons, while the steel output rose in the same years from 1.07 million tons to 18.2 million tons. This development of the use of steel very largely displaced the old system of puddling, and so rendered obsolete a very considerable amount of capital invested in puddling furnaces, and the laboriously acquired skill of many thousands of "puddlers".

As regards tin, the year 1872 marked the opening of tin

mines in Australia, and though the production from that source subsequently fell off, Straits tin began to come into the market freely. In the early 'nineties the demand of the tin-plate industry caused an upward swing in the price of raw tin, for as the market for that metal is a small one and the supply cannot readily be increased, any change in demand quickly raises prices; but the boom was followed by a slump in England, for the manufacture of tin plates was hard hit by the Wilson tariff in America in 1893, and as the supply of tin steadily increased the price fell away once more.

Copper.

The case of copper only differs from that of tin in the fact that the uses of copper expanded even more rapidly during the period under consideration, and especially so in the later years on account of the growth of electrical industries. The supply, nevertheless, increased even more rapidly, Mr. Sauerbeck estimating in 1885 that the world's supply of copper had increased by 97 per cent in the previous thirteen years.

Lead.

Lead fell less than other metals, but it is worth noting that the supply increased very much through the discovery of new mines, and that the fall was sufficiently severe to cause the closing of most of those in England. The new lead was, in fact, found in combination with silver, and being produced as a by-product, could be put on the market at prices against which British lead mines found it impossible to compete.

L

The fall in the price of coal, like that of iron, is to be accounted for by the discovery of large deposits in Germany and the United States, the output of these two countries having risen from 195.6 million tons in 1870-74 to 480.3 million tons in 1895-99. Following a boom in which coal was at famine prices, owing chiefly to the demand by the iron and steel trades and the shipping industry, prices naturally fell away in the later 'seventies. But coal is required for all

kinds of uses, and its consumption is an essential of nearly all industries. As, therefore, the volume of trade throughout this period continued to increase, it is not surprising that the demand prevented its market value from falling as much as that of other leading minerals.

Included in the group of commodities falling at the average rate are a number of agricultural products, which fell less rapidly than wheat, as such articles were not very largely grown in the New World. On the whole, in the years succeeding 1875, British agriculture probably suffered more severely than in any other decade in the nineteenth century. Seven harvests in nine years below the average would be disastrous at any time; but coming just when the means of transport were opening up the wheat states of America, and driving down the price of wheat in relation to other commodities, they produced the acutest depression. The purchasing power of the agricultural section of the community for the time fell off; rents had to be reduced and labour dismissed and sent townwards. It took many years for the British farmer to adapt his methods to the new condition of things, but a glance at our analysis of prices shows where he found his chief relief. Animal products, with the exception of wool, throughout this period had fallen very little, and it was not until the 'eighties were well advanced that frozen meat from the Antipodes began to bring down prices in the English market. The period thus saw a great deal of the land of England converted from arable cultivation to pasture.

If manufactured commodities could have been included in this price review, they would have shown the effect of the improvement in the arts of manufacture. But no reliable estimate of the increased productivity of manufacturing industries as a whole can be formed, though reference may be made to Mr. William Fowler's statement in 1886 that

British
agricul-
tural
products

Manufac-
turing
progress.

Other
considera-
tions.

"wages have greatly increased, but the cost of doing a given amount of work has greatly decreased, so that five men can now do the work which would have demanded the labour of eight men in 1850. If this be correct the saving of labour is 40 per cent in producing any given article."¹ On the other hand, no such changes had occurred in retail occupations, in handicraft industries, or in occupations involving personal services, and these considerations must modify our estimate of the increase in the number of business transactions to be performed by the aid of currency. But the statistics in Appendix D show that the enlargement of the volume of business was exceedingly great, during a period when gold was being used to perform a much larger proportion of the world's transactions than before.

American
influence
on prices.

The contrast between this and the preceding period may be emphasised by a consideration of the part which was played by, let us say, America. It has been seen that in the decade 1850-60 large quantities of gold were placed in the hands of the new population in California and Australia. This gold gave them a command over the commodities of the Old World. The discoveries added, in fact, to the effective demand without adding consumable commodities; but it did add materially to the volume of the means of exchange. The decades 1875-95, on the other hand, saw in these countries a great extension of the production of consumable commodities, which were exchanged partly against the products of the Old World, but also partly against gold itself, which was required in these new countries to assist in the process of development. For credit money is rarely used in unsettled and growing communities, and the building of railways and the development of new territory require

¹ *Appreciation of Gold*, William Fowler, Fellow of University College, London 1886.

large quantities of bullion. In this second period, therefore, the new countries drew on the world's stock of gold and gave in exchange consumable commodities, the effect of which was to drive down prices of such goods in the world market.

The period under review was one in which those whose income was derived from fixed interest securities, such as Consols and railway debentures, benefited very much compared with those whose income depended upon profits and fell away as prices dropped.¹ The commercial class, the professional class in receipt of customary fees, wage-earners whose wages did not fluctuate with prices, all benefited by the downward movement, and even in the case of trades where wages varied with prices, the movement of wages lagged behind the fall in the price-level. At the most acute times of depression unemployment apparently rose very much, but, looking at the whole period, there seems to be no evidence that employment was less regular than in preceding periods. The change in the situation of wage-earners may be briefly traced by considering Mr. Wood's statistics of real wages, which take both prices and unemployment into account (see Appendix E). Starting in 1875, there is a drop to 1879, then a rise until 1883, followed by a slight fall the next year. From that date there is a rapid rise until 1890, when the real wages index number stood at 162, compared to 132 fifteen years earlier. Thereafter there is a slight reaction, but a fresh maximum is reached again in 1896. These figures refer, for the most part, to those classes of workers whose wages change most readily, and leave out large classes of persons whose wages are fairly stationary. A glance at the column of money wages, however, shows that

Distribu-
tion.

Real
wages.

¹ This may be seen by contrasting the movement of Consols or railway debentures with other securities, Consols having risen steadily throughout the whole twenty-five years.

the greater part of the benefit to wage-receivers was due to the fall in prices rather than to the rise of money wages. This is in marked contrast to the preceding period, in which, though money wages advanced very rapidly, real wages rose moderately on account of the fact that prices were rising. Similar conclusions are arrived at by Professor Bowley, who notices two periods of practically stationary money wages, viz 1879-87 and 1892-97; but in each of these periods he states that real wages rose owing to the fall of prices. Even in the period of rapidly falling money wages between 1873 and 1879, the loss was almost counterbalanced, from the workers' point of view, by the reduction of prices.

Consump-
tion.

Further, the analysis of relative price changes given above shows that, though animal products are still to be found among articles falling less than the average, even they fell from 22 to 33 per cent below their price in 1871-75; while wheat, sugar, and tea are to be found among the commodities that fell more rapidly than the average, each of these three commodities having, in fact, fallen to less than one-half the prices of 1871-75. This fall had a marked effect on the consumption per head of common articles of food, the statistics showing that, while meat and flour consumption increased fairly steadily, the consumption of cocoa, tea, sugar, rice, currants and raisins, and tobacco rose at a very rapid rate.¹ This result seems to indicate that at the time now under discussion a large proportion of the working-classes were supplied with the most pressing necessities, and that the fall in prices left an increasing margin to spend on other things at the same time that these other commodities were becoming cheaper. The period thus saw a very rapid advance in the standard of comfort, an enlarging of the social amenities in the life of the poor, and the formation of new hopes

¹ See Appendix E.

and ambitions. It was marked at its beginning by the adoption of compulsory education, and at its close by the appearance of the halfpenny press.

These years were not notable for any very rapid expansion of the trade union movement, except in 1889 and 1890, when a wave of enthusiasm spread over the lower-paid grades of the working-classes, and unions sprang up in many casual, scattered, and unskilled occupations. For, on the whole, the working man found that events were themselves improving his economic position without any effort on his part, and any one who was able to prevent a fall in his money wages saw his real wages rising year by year. The spread of trade unions was, therefore, for the most part confined to certain staple trades, and in particular to the coal, iron, and shipbuilding trades, in which, as a result of sliding scales, the fall of prices was rapidly driving down wages.

On the other hand, Professor Bowley's figures show that profits rose hardly so fast as the wages-bill of the nation. Capital indeed increased very fast, for the expenditure by the wealthy had not yet become so lavish as it became later, and habits of saving produced a superabundance of capital in a market where the existing demand was already well satisfied. The normal rate of interest, therefore, fell, and with it the return to floating capital.

So far, no reference has been made to the effect of the demonetisation of silver, or to the arguments of the bimetallists, around which most of the discussion of prices during this period eventually centred. The matter is highly complicated, and covers so wide a field that it can only be very briefly touched upon. Two main points should, however, be mentioned.

In the first place, seeing that the fall of general prices was

The
shortage
of gold.

due to the fact that the medium of exchange did not increase so rapidly as the total transactions to be performed by its agency, it is evident that the fall might have been arrested by enlarging the medium of exchange. The bimetallists, therefore, proposed that silver should be added to gold in the currencies of the nations, the two metals being employed as a *joint standard of value*. In countries with a gold standard, token silver coins are, it is true, used as change and constitute an important part of the currency of the country. But the fact that a shilling does not contain more than a few pence worth of silver means that its value depends on the authority of the government which issues it at the value of one-twentieth part of a pound. The purchasing power of the pound, on the other hand, when the currency is on the gold standard, depends on the value of the bullion contained in it (in the case of a golden sovereign) or into which it can be converted (in the case of a note). But silver coins, which are only legal tender for small sums, are only issued to the amount which is required for small change. Whatever, therefore, the market value of silver may be, the purchasing power of the shilling varies according to the purchasing power of gold, and not according to the purchasing power of silver bullion. That is to say, the metal gold is the sole standard of value. If, under a system of free mintage for both metals, silver were declared legal tender to any amount, while the bullion value of silver coins was made equal to their nominal face value, silver would become a joint standard with gold; and if the market value of the two metals could be maintained in a definite proportion to one another, both metals would remain in circulation as standard currency. Under such circumstances an increase in the world's production of silver would find its way into the monetary systems of the world, add to the supply of standard money, and

produce a similar effect to that which is produced under the gold standard by an increase in the world's gold supply. The bimetallists thus desired to make the world's stock of silver available as currency in view of the apparent shortage of gold, which had manifestly been accentuated by the demonetisation of silver and the adoption of the gold basis in the currency systems of Germany, the United States, and France.

The experience of the last-named country had, however, proved that a single country cannot keep the ratio between the two metals steady, with the result that instead of having a joint currency, she had first a gold and then a silver one, according as one or the other metal happened to be cheaper at the moment in the world market; for when gold fell in value it was taken to France and exchanged for silver, and when silver fell, gold was drawn away from France in exchange for silver. It therefore soon became recognised that, if bimetallism was to be successful, all governments must combine to maintain gold and silver at the same ratio. An international agreement of this kind, however, proved to be outside the range of practical politics, and all the leading countries of the world began to show a preference for a gold currency. The arguments for this preference were many, but briefly it may be said that, as wealth increases and the volume of transactions grows, the advantage of a cheap currency medium diminishes, while the utility of a more expensive one increases. It would have been highly inconvenient if the £120,000,000 worth of gold coin in circulation in England had been converted into silver coin, which would weigh fifteen times as much as the gold. The experience of the United States, moreover, showed that the public would not handle more than a certain weight of silver, for of 380,000,000 silver dollars in existence in the United States

An international agreement would have been needed.

between 1879 and 1890 the Treasury was only able to put into circulation \$57,000,000. If silver had formed a large part of our currency it would certainly have remained in bank reserves and not in circulation. Considering the expanding volume of business, gold was, in fact, a more convenient instrument than silver.

Competition of silver-using countries as a means of depressing prices.

The second point to be mentioned is that the demonetisation of silver tended to depress prices in the following way. The fall of silver in terms of gold, which occurred after 1873, is said to have given a great advantage to silver-using countries in competition with gold countries. Thus the cost of production of Indian wheat in terms of rupees, determined by the number of rupees required to repay the cultivator for his labour, together with the number of rupees paid for transport, etc., had hardly varied at all for many years. But it fell in terms of gold as fast as silver depreciated. When, therefore, the Indian merchant sold his wheat on the English market and was paid in gold or its equivalent, he found that his receipts were much more valuable in silver than before, and that he could withdraw from Europe a larger quantity of the depreciated metal. But as his costs were reckoned in silver at home, he found his profits greatly increased—or, to put it in another way, he found that he could still make his old profit, even if he sold his goods at a lower gold price. He was thus able to undersell the British farmer and bring prices down. To analyse this argument fully would involve a complicated examination of the exchange between England and India, as well as of the principles which determine foreign trade. Briefly, however, it may be said that such an effect would only be produced so long as Indian commodities are being given in exchange for silver. As soon as English commodities began to be taken in exchange for Indian commodities, the Indian merchant would lose as much by buying such goods

in the appreciated metal gold and selling them in silver as he gained by selling his own goods in the appreciated metal gold.

But the reader who has followed the preceding analysis of prices will see that in any case this influence is unimportant in comparison with the broader changes in production which accounted for the general fall in prices. With the exception of wheat and tea, Indian products do not figure among the articles which fell most heavily in price, and in the case of tea the explanation given above is quite adequate to account for the fall. It would, therefore, seem that the depreciation of silver was, at any rate, of secondary importance in driving down prices.

Whatever weight, however, may be attributed to this influence, it must be borne in mind that the argument for bi-metallism assumes that it is advisable for prices not to fall. In view of what has been said with regard to distribution, it will be seen that there was much to be said in favour of falling prices as a social advantage. And even if it be urged that the agricultural depression at all events was a tangible proof of the harmful effects of falling prices, it may be pointed out that even if the general level of prices had remained as before, it would still have been more profitable to produce cattle than cereals under the new conditions of the world's production, and that with few exceptions, even if the table of commodities had been headed with the statement, "No change in general prices", the commodities which now appear in the left-hand column would still have shown a relative decline, while those to the right would probably have risen. In other words, the agricultural depression from the farmer's point of view was a question of relative and not of absolute prices.

Assump-
tion of
bi-metal-
lism.

Agricul-
tural
depression
a question
of relative
prices.

BIBLIOGRAPHICAL NOTE

There is a mass of literature on the points touched upon in this chapter. D. A. Wells' *Recent Economic Changes* gives a very clear review, which may be supplemented by the Reports of the Royal Commissions on Trade Depression and on Recent Changes in the Relative Values of the Precious Metals (Gold and Silver Commission). This period is also discussed in L. L. Price's *Money in Relation to Prices*. On the Bimetallic question see Leonard Darwin's *Bimetallism*. As regards wages, see Mr Bowley's *Wages in the United Kingdom in the Nineteenth Century*; also Giffen's "Gross and Net Advantage of Rising Wages", *Economic Enquiries and Studies*, vol. ii.

CHAPTER IX

1896-1914

PRICES RISING

THE features of the price curve, during the upward movement which lasted from 1896 to 1914, are the booms of 1900 and 1907, with a considerable depression in the intervening years, and after 1907 a drop with a further rise to the highest point in 1913. Thus there are two fairly long cycles and a short one, which had possibly not reached its climax when war broke out. But whether one looks to the maximum points or to the bottom points of these three cycles, there is shown an equally steady upward movement General features.

The association of this change in direction with the upward bound of the gold production curve is so clear from the diagram that it requires little emphasis in words or figures; but reference to Appendix B shows what proportion the annual output of these years bore to the world's stock of gold. On the eve of the Great War gold was being produced at such a rate as would double the existing stock in about twenty-five years; while the stock existing in 1895 had been increased by 50 per cent. Figures, moreover, are added which show that although South Africa was responsible for much the largest increase, the supply from other countries had also grown enormously since the discovery of modern processes of gold mining. Relation to gold output.

Such colossal additions to the world's gold would have caused an economic revolution unless they had been

Absorption
of gold
by India,

absorbed under very special circumstances. India, as usual, drew away enormous quantities: according to an estimate by Sir James Wilson her absorption of gold during the first decade of this century amounted to £82,000,000, or more than one-tenth of the world's production during the period, while the rate of absorption was apparently increasing, for in the last two years of the period she took one-sixth of the world's production. Again, the spreading of commerce in the East, the commercial development of new territory in every continent, and the growth of population in new countries which were opened up in the preceding period caused a world-wide increase in the demand for gold currency.

But the £1,400,000,000 of gold produced between 1896 and 1914—which was nearly four times as great as the whole world's production between 1800 and 1850, and was about 44 per cent of the total world's stock in 1910—was much too large a sum to be absorbed by new countries, and statistics show that a large amount poured into the older gold-using countries.

and by the
United
States.

Far the most astounding statistics are those of the United States of America, for, in spite of an increasing output from her own mines, that country actually imported gold from the rest of the world. According to the estimate of the Master of the United States Mint, the addition to the quantity of gold in currency, in bank reserves, and in the Treasury of the United States between 1894 and 1914 amounted to no less a sum than £250,000,000—the use of gold in the United States for these purposes having trebled in twenty years. Of this £250 millions about £215 millions represented increased gold, or gold certificate, circulation. Nearly one-fifth of the increased supply is thus accounted for.

The arrival of the new gold in England, which may be traced in detail in the statistics of imports and exports given

in Appendix C, showed its effect in the steady upward trend of the total bullion and coin reserve of the Bank, which rose from £22 millions sterling in 1890 to over £44 millions in 1896. Thus in the early years of the South African boom, the gold found its way to the Bank of England and caused a considerable fall in discount rates; and though the reserve subsequently fell to a normal figure of about £35 millions, the gold did not leave the country, but passed on into circulation. According to the estimate of the Royal Mint, the total supply of gold in circulation and in reserve amounted to £92,500,000 in 1895, £100,000,000 in 1903, and £113,000,000 at the end of 1910. During these fifteen years the country imported some £65 millions more than was exported, the difference between these two figures representing the loss to the coinage by wear and tear, and the use of gold in the arts.

Currency
require-
ments of
Great
Britain.

The gold holdings of the Reichsbank increased to some extent during this period; but the absorption of gold by Germany for other purposes was very rapid. The Bank of France, on the other hand, built up a far larger gold reserve, its gold holdings increasing by over £115 millions in the eighteen years. These changes may be traced in detail in the statistics given in Appendix C, their outstanding feature, as we have said, being the insatiable appetite of the United States for gold.

Turning briefly to other forms of currency, there is evidence that in England bank money was increasing at a very rapid rate. The deposits in banks¹ of the United Kingdom rose from £622,000,000 at the beginning of 1894 to £1,033,000,000 in 1913—a rise of over 65 per cent; while the clearings of the London Clearing-House Banks increased in the same period from £6,332,000,000 to £16,436,000,000. Deposits in the

Credit
money.

¹ Including private banks, but excluding foreign and colonial banks which have offices in London.

National Banks, State Banks, Trust Companies and Private Banks of the United States, rose from £718,000,000 in 1895 to £2,623,000,000 in 1913, and though by no means all of this sum represented deposits against which cheques could be drawn, it is safe to say that it indicated a more than three-fold increase in the possible bank currency of the country. This is about the equivalent of the rate of growth of gold in circulation. Deposits in current accounts of German joint-stock banks showed a similar increase from £112,000,000 in 1895 to £353,000,000 in 1907. Thus not only had gold become far more plentiful but the credit currency based upon it in leading commercial countries had also enormously increased, though the growth in the United Kingdom was much smaller than in Germany and the United States.

Diffusion
of gold
means an
addition to
the world's
demand for
goods at
prevailing
level of
prices.

It has been explained in Chapter IV how gold from the mines gradually diffused itself throughout the business world, placing an increased purchasing power in the hands of various classes of the community. In applying that account to the case now under discussion we need only add that the economic changes of the 'eighties and 'nineties, which extended manufacturing industries throughout Germany and the United States, and developed transport facilities in distant agricultural countries such as Argentina and Australia, involved a more general diffusion of purchasing power than had ever before occurred. The currency statistics given above are the natural accompaniment of this development. It is, however, very significant when we come to consider price changes, for it has an important bearing on what is commonly spoken of as the increase in the world's demand for staple commodities and in particular for food products. In this connection it should be pointed out that Germany's population would, no doubt, always have liked to be able to buy wheat instead of rye bread, but until the industrial

development of Germany occurred—which permitted wages and the standard of living to rise—the German working-man's demand for wheaten bread was an *ineffective* demand, for he had not the wherewithal to pay for it. Now, if Germany's industrial expansion had continued in a time of gold shortage, Germany would doubtless have secured a large proportion of the world's stock of gold, but at the expense of other countries and the price-level would have fallen, as indeed it actually did during the 'eighties; but as industrial expansion was most rapid during a period of increasing gold output, Germany satisfied her currency requirements by drawing on the new gold supplies. Thus, additional consumers were making an effective demand upon the world's food and raw material resources without having in any way diminished the gold supply in the hands of the older consuming countries. The ultimate effect on various commodity prices of this enlarged demand was determined partly by the requirements of those who obtained this increased purchasing power, and partly by the conditions of production which prevented the supply of certain articles from increasing as fast as the world's effective demand.

It remains then to inquire how production responded to this increase in demand during this period, and to see which articles rose more and which less than the average. The facts are shown in the analysis on the next page of the articles included in Sauerbeck's index number.

Relative
prices and
the increase
of pro-
duction.

It will not be necessary to discuss all these commodities in detail, but the table presents some significant contrasts with the similar table for the preceding period. The most striking change of all is in the position of cotton, which, having fallen prior to 1895 more than almost any other commodity, rose in the following period by 53 per cent. Wheat, on the other hand, which was among the commodities which formerly fell

Contrast
of wheat
and cotton.

rapidly, remains among the commodities which rose less than the average. The world wheat crop was increasing in this period, owing to the opening up for cultivation of many new areas. This increase in supply accounts for the fact that the price of wheat lagged behind the general average (although small harvests in 1907 and 1908 forced the price up in 1909),

ANALYSIS OF PRICE CHANGES BETWEEN 1894-98 AND 1910-14

(Average rose 34 per cent.)

Articles which rose less than the Average.		Articles which rose about the same as the Average		Articles which rose more than the Average.	
	per cent		per cent		per cent
Indigo	. (- 17)	Bacon	. (+ 29)	Petroleum	(+ 42)
Coffee	. (- 12)	Hemp	. (+ 29)	Lead	. (+ 46)
Tallow	. (- 1)	Coal	. (+ 30)	Oils	. (+ 49)
Silk	. (+ 4)	Nitrate	. (+ 30)	Maize	. (+ 51)
Tea	. (+ 6)	Iron	. (+ 35)	Cotton	. (+ 53)
Potatoes	. (+ 8)	Copper	. (+ 36)	Hides	. (+ 57)
Sugar	. (+ 10)	Rice	. (+ 36)	Linseed	. (+ 71)
Barley	. (+ 13)	Flax	. (+ 39)	Jute	. (+ 90)
Soda	. (+ 16)			Tin	. (+ 179)
Flour	. (+ 17)				
Oats	. (+ 19)				
Timber	. (+ 19)				
Mutton	. (+ 20)				
Pork	. (+ 23)				
Wheat	. (+ 25)				
Beef	. (+ 26)				
Leather	. (+ 27)				
Wool	. (+ 28)				

but the price remained fairly well above the level of the 'nineties, and British farmers were beginning to find wheat-farming again profitable. The world's available cotton area, on the other hand, did not in this period show itself capable of extension. The American cotton belt was invaded by wheat and other crops; for the farmer's security against market fluctuations increased with the introduction of mixed

farming, while his cereal produce found a ready sale in the manufacturing centres which were growing up at his own door. The Western extension of the cotton belt was hindered by a shortage of the negro labour supply.¹ In spite, therefore, of the efforts made to develop cotton-growing in other countries, the world's cotton crop did not increase with the growing requirements of the various manufacturing countries. Hence while wheat merely showed a rise of 25 per cent, cotton rose 53 per cent.

Another feature of the table is the position of animal products, which now appear among commodities rising less than the average. This fact, which contrasts with the prices of such articles in every preceding period, is to be explained by the improvements in the transport facilities of the meat trade, and the enlargement of the area from which animal produce was now obtainable. Australia and Argentina were, in fact, now doing for the meat industry what the United States had done for cereals thirty years previously. All this meat from distant countries was, moreover, thrown on the English market, thanks to the fact that European countries maintained high tariffs on imports of meat. It is true that the import of live animals for food fell off somewhat towards the end of the period, but only to be displaced by frozen, chilled, or preserved meats. Some indication of the growth of the latter kind of produce may be gathered from the fact that the 10 million cwt. of such meat imported by the United Kingdom in 1895 had grown to 20 million cwt. in 1909. Potatoes, barley, and oats, all of which were largely supplied from home sources, did not rise so fast as average prices.

The total annual output of coal for the United Kingdom, United States, Germany, and France rose from 510 million Coal, iron, and steel.

¹ The picking of cotton is a disagreeable occupation, which must be done by hand, and is practically confined to negro labour in the United States.

Other
metals.

tons in 1895-99 to 935 million tons in 1910-14; the output of pig-iron in the same years rose from 28.2 million tons to 56.7 million tons; while that of steel increased from 18.2 million tons to 54.1 million tons. In each of these cases the United States left the rest of the world far behind in the rate of increase, while Germany's output of pig-iron and steel easily surpassed that of the United Kingdom in the last few years. The world's output of copper and tin also increased very rapidly, although, in the case of tin, the still more rapid expansion in the use of the metal, especially in the United States industries, again placed it among the commodities whose prices rose more than the average.

None of these figures show any indication of a slowing up in the world's production of material goods, and though the rate of development was perhaps hardly so astounding as in the three previous decades, they clearly prove that the production of these staple articles was increasing faster than the population of modern Western countries. But before passing to the effect of these changes on real wages and distribution, there are one or two further points which arise from a study of this classification of commodities.

Preponderating
influence
of the
U.S.A.

The outstanding fact is that the most rapidly rising prices were, in the main, those over which the United States of America exercised a preponderating influence. In the case of tin, the demand from the United States for various purposes was the chief factor, though a syndicate of European speculators took advantage of the shortage of supply to corner the commodity and control prices. In the case of cotton, though the causes mentioned above were at the root of the difficulty, speculators in this case also used the position to hold up prices, and make considerable profits, while the growing demand of American mills limited the amount of raw cotton available for Lancashire. A similar statement

might be made in the case of copper, in which the notorious Copper Trust attempted to control the market, and at certain stages of its chequered history was able to limit production in the interest of producers.

This fact suggests a consideration of the price changes that occurred in various countries. The index numbers discussed in detail in Appendix A show that between 1896 and 1909 prices rose by some 40 per cent in the United States, by 35 per cent in Germany, and by 22 per cent in Great Britain. It may at first cause some surprise that in modern times, when there is a world market for most commodities, these index numbers did not show greater similarity; but there are a number of considerations which made it possible for the purchasing power of gold to be different in various countries, the most important being the existence of tariffs. This applies with especial force to the United States. Behind the tariff barrier, the influx of gold produced, in conjunction with the increased requirements of the population, a brisk demand for all kinds of commodities. Prices once having risen, fresh supplies of gold and paper currency were called into circulation. In a free-trade country this rise would soon have been stopped by the importation of lower-priced goods from other countries, and the level of prices reduced once more to that of the open market. But this was prevented in the case of the United States by the existence of the tariff,¹

Tariffs,
trusts, and
gold
supply.

¹ The McKinley tariff came into force in 1890, the Wilson tariff (a downward revision) in 1893, and the Dingley tariff (high protection) in 1897. The downward revision of the Underwood tariff in 1913 hardly had time to produce its effect before the end of the period. A tariff only acts directly on the price of foreign trade articles, raising in the long run the price of those things which continue to be imported above the open world market-price by the amount of the duty, while articles shut out by the tariff may rise by an amount somewhat less than the duty. But there is also an indirect effect, for the rise in price of a few articles tends to spread itself to industries in which foreign competition does not enter—transport, for example—by adding to the cost of production of those who use “protected” articles and by raising the cost of living of those who

while competition in the home market, which might otherwise have been effective in reducing prices to a lower level, was limited by the existence of large industrial and commercial trusts.

It would be an exaggeration to ascribe the existence of such organisations to the increasing gold supply; but it is quite a tenable opinion that times of rising prices are much more favourable for monopolists who wish to hold up the prices of any given commodity, than times of falling prices. For when the amount of currency is tending to increase in the country, a strong monopolist may be able to get a larger proportion of it with less risk of spoiling his own market, than when there is a shortage of money. The upward movement of prices in America extended to wages and thus raised the cost of production of manufactured products in that country. While, therefore, American conditions were to a very large extent responsible for the fall of prices in the preceding period, that country now appears as the chief cause of the upward movement.¹

Distribu-
tion.

Turning to the effect of these changes on distribution, the table of relative prices shows that the commodities directly consumed by the working-classes did not rise so fast as average prices. Wheat, tea, and sugar rose less than the average, while meat and dairy produce are also found in the left-hand column. The classification therefore suggests that the rise of prices was not so disastrous in its effect on the purchasing power of wages as might, at first sight, have been expected, and this view is supported by the available

consume "protected" goods. A heavy general tariff will thus slowly but surely spread its effect throughout the whole community, causing the general level of prices to rise more than in the open market.

¹ It is quite possible that if America had not absorbed such large quantities of the new gold, the abundance of currency in other countries would have made the prices of goods, in which Europe plays the chief part, rise faster than they actually did.

statistics of retail prices. It is true that there was at the time much difference of opinion as to the extent of the rise of the retail price index number, and it was suggested by Professor Bowley that the Board of Trade figure erred in overstating the case. He himself suggested an alternative which represented the minimum rise, in view of the ascertained facts, the truth presumably lying somewhere between his figure and that of the Board of Trade.

	Mr Sauerbeck's Index Number for Wholesale Food Prices.	Labour Depart- ment's Retail Index Number	Suggested Retail Index Number
1896	85	84	91
1897	89	89	94
1898	93	93	94
1899	89	89	94
1900	95	92	95
1901	92	94	96
1902	92	93	96
1903	90	95	97
1904	93	96	97
1905	95	95	97
1906	95	95	97
1907	99	97	98
1908	99	99.5	100
1909	100	100	100
1910	101	101	100
1911	102	99	..
1912	110	103	..
1913	105	103	..
1914	110	102	..

If the rise of retail prices was between that shown by the second and third of these columns, it would seem that there was a lag in retail prices as compared with wholesale, which may be explained, on the one hand by the fact that the most important food products rose comparatively little, and, on the other hand, by the tendency of retail prices to move less freely up and down than wholesale prices.

Wages.

But if retail prices lagged behind, wages lagged still more markedly. Statistics of wages in Appendix E clearly show the slowing up in the rate of increase of money wages, and if prices are taken into account it appears that the period also saw a halt in the rise of real wages. In certain special trades wages continued to rise—notably in coal-mining and the cotton trades, but in other directions the upward movements were sectional. In the following table the index numbers given by the Board of Trade of rates in some leading industries have been summarised for the period under review. To these have been added figures of earnings of railwaymen, postmen, and seamen:

	1894-1898	1910-1913	Increase per cent
Building trades (rates) . . .	93.78	101.4	8 per cent
Coal-mining (rates) . . .	74.35	93.1	25 "
Engineering (rates) . . .	95.97	103.6	8 "
Textiles (rates) . . .	94.97	109.1	15 "
Agriculture (earnings) . . .	93.45	107.2	14½ "
Railway service (earnings) . .	24/4½	26/10	10 "
A.B.'s on steamships (earnings)	77/5¾ ¹	110/- ³	42 "
Firemen and Trimmers "	82/9 ¹	110/- ³	33 "
A.B.'s on sailing ships "	56/6¾ ¹	80/- ³	43 "
Counter clerks and telegraph- ists (male) in London (earn- ings)	39/5 ²	47/1½ ⁴	19½ "
Postmen in London (earnings)	26/7 ²	31/6½ ⁴	19½ "
Sorting clerks and telegraph- ists (male) in rest of U.K. (earnings)	33/1 ²	36/9½ ⁴	11 "
Postmen in rest of U.K. (earn- ings)	23/5 ²	26/7 ⁴	9 "

¹ 1896-98.² 1897 average.³ 1914.⁴ 1910.

A feature of this list is the fact that the Government servants were more successful in their claim for higher wages than the railwaymen, though the two services might be ex-

pected to appeal to the same type of man, and were similar in respect of regularity, pensions, etc.

It may perhaps be urged that in basing arguments on a comparison of wages and prices in the middle of the 'nineties and the period 1910-14, we are setting a period of depression against a period of booming trade. Wages naturally do not follow prices in all their temporary ups-and-downs, and if we wait long enough, or make the comparison with a little earlier period before prices touched bottom, we should not find there had been any lag in wages. But against this must be set the fact that we are comparing the average of two quinquennial periods with a view to eliminating quite temporary influences. In the middle of the 'nineties real wages undoubtedly rose to the highest point, thanks to the fall in prices; and in the following period there was a lag in wages. From the wage-earner's point of view the comparison is quite properly made with real wages at their best. The change in tendency is, however, best seen on the diagram of real wages in Appendix E.

If, however, it could be shown that there was a movement from lower to higher grades, the figures given would not present a true account of the prosperity of the working-classes as a whole: but such an upward movement, though it might reflect the general rise in ability or in the industrial qualifications of the working population, would be a very unsatisfactory answer to those who remained in their former industries, and whose real wages were reduced on account of the rise in prices. Working men whose industry was not one which afforded scope for promotion, but who were practically wedded to their trade for life, could hardly be satisfied by the reflection that the rising generation were able to start in a more skilled occupation, and, therefore, could earn wages which enabled them to maintain the former standard of comfort.

The figures of the census of 1911 do not show any convincing sign of a general transference from trades where wages hung back to those in which they rose. There was a considerable increase, compared with 1901, in the proportion of the total occupied population engaged in some occupations where wages were comparatively steady, such as commercial employment, domestic service, and general retail or distributive occupations, as well as in some of the industries in which wages had shown an increase. There is a probability, therefore, that average real wages declined in the period under consideration, though the lack of adequate statistics makes it impossible to say precisely to what extent.

Real
wages.

Hours.

It should be remarked in passing that a compensating factor was the tendency to reduce hours of labour, though there were many groups of employment where this tendency had hardly shown itself before the end of the period.

As the downward pressure of real wages became more acute, the number of trade disputes showed a tendency to increase, and especially in the latter years of the period big outbreaks occurred. Many of the organised trades did indeed succeed in raising their wages to correspond with the movement in prices, but the greatest discontent was found among those classes whose wages were fixed and did not readily respond to the change in economic conditions. A still more potent factor in the increasing labour unrest was, however, to be found in the higher standard of comfort and the possibility of a broader and more diverse life which education and the diffusion of general knowledge were bringing within the horizon of the working-classes. This knowledge, combined with the conviction that they were not sharing to the full in the advantages of material progress, constituted one of the underlying causes of labour unrest.

Profits.

As regards the incomes of non-wage-earners, income-tax

statistics point to a very rapid increase in profits in the period under discussion; while the yield on new capital seeking investment was much higher than in the 'nineties, thanks to fresh openings for capital in all parts of the world.

BIBLIOGRAPHICAL NOTE

A comparative statement of wholesale price movements is given in an article by Mr. Hooker in the *Statistical Journal* for December 1911. As regards the United States see Irving Fisher's *Purchasing Power of Money*, chap. xii.

Statistical material can be found in the *Statistical Abstract* and the *Abstract of Labour Statistics*. See also the reports of the Board of Trade Enquiries into Earnings and Hours (1906) and into the Cost of Living of the Working Classes (1907) and the various reports of the Royal Commission on the Poor Laws and the Relief of Distress.

CHAPTER X

PRICES FROM 1914 TO 1922

The
situation
in July
1914.

THE Great War broke out at the end of July 1914. In the immediately preceding years the tendency of prices had been upwards, while the degree of unemployment shown by the Trade Union figures was small. There seemed to be every evidence for the belief that Great Britain, and the world at large, found themselves, not only in the upward phase of a trade cycle, but also still under the influence of the general rising tendency of the price-level which had been in evidence since the beginning of the twentieth century. What would have been the further development of these tendencies we shall never know, for the economic and monetary disturbances incidental to the war interrupted the normal course of events and initiated price movements whose violence and extent far exceeded anything that had been experienced in this country for the past hundred years.

The price variations considered in preceding chapters amounted to from 25 to 40 per cent, spread over periods of two or three decades. The movements we now have to consider are of enormously greater magnitude concentrated into the space of less than eight years. Before the war, the highest figure the price index ever attained was 260 (1900 being 100), reached during the Napoleonic Wars—an almost incredible figure to those accustomed to the modest variations of later generations. But in the Great War period even this previous record was outstripped.

The index number of wholesale prices shown on Chart I,

which on the basis of 1900 = 100, averaged 113 in 1912-14, averaged 335 in 1920. The more detailed movements are shown on Chart II, where the year 1913 has been taken as the basis. On this basis the highest figure reached was $299\frac{1}{2}$ in March 1920, a trebling of the price-level in less than six years. From that point the index number fell to $145\frac{1}{2}$ in February 1922—that is to say, the level of wholesale prices was reduced to less than half in twenty-three months. Movements such as these were not compatible with the maintenance of the pre-war currency system, which disappeared, like so many other old-established institutions, in the early months of the war. We have already seen in Chapter V that some modifications of theory are required to explain the movements of prices in a period of currency disturbance, although the underlying principles are not affected. The factors affecting the price-level in the eight years under discussion arose, as we shall see, both on the side of money and on the side of the volume of business to be transacted with the available medium of exchange. But, as in other periods, the magnitude of the price changes would not have been possible without large fluctuations on the side of money, and they were, in fact, brought about by the expansion of the circulating medium on an unprecedented scale.

Features
of the
price curve

The movement of prices between the outbreak of war and the end of 1921 falls into two clearly marked periods. Prices started to rise in the early months of 1915, and though there were hesitations from time to time, the rise was virtually continuous until August 1918, by which time the index was 125 per cent above its 1913 base. For the next few months prices declined slowly, and then after the Armistice in November more sharply, until in March 1919, the index had fallen from 225 to $203\frac{1}{2}$. From that point, however, the rise was resumed, and it continued for another twelve months at

Division
into two
periods.

a much steeper rate than at any previous time. A glance at Chart II will show how rapid was this post-war rise and how sudden the ensuing decline.

The second period begins in March 1920, when the index touched its highest point, just less than 200 per cent above 1913. The descent from the peak was very rapid, especially in the winter of 1920-21. The 96 points which the index had gained in twelve months it lost in less than ten. In the spring of 1921 the curve began to flatten out, and there was even a slight rise in August and September, but the downward tendency continued until the end of the year, and stability was not attained until 1922, when the wholesale price-level settled down at about 50 per cent above its 1913 figure.

These two periods are in most striking contrast to each other, particularly when it is added that the years of rising prices saw employment at a maximum, while the decline in the second half of 1920 and throughout 1921 was accompanied by one of the sharpest recessions in trade ever experienced up to that time. The Trade Union unemployment percentage throughout most of 1915, and all of 1916, 1917, and 1918, was less than 1 per cent, a figure only once previously equalled. The percentage was higher in 1919, with the demobilisation of the army and the cessation of the demand for war supplies, but it was still only 2·4 per cent, much below the average of the previous century. By way of contrast, the percentage figure of unemployed members of Trade Unions rose in 1921 to 14·8 per cent, nearly one-fifth larger than the previous highest figure, that of the year 1858, which followed one of the severest crises of the nineteenth century. In view of these facts, the two divisions of the period under review will be treated separately, the first from August 1914 to March 1920, the second from March 1920 to February 1922.

1. 1914-1920. PRICES RISING

One of the first effects of any war which interferes with the War channels of commerce and commandeers transport facilities raises prices by creating scarcity. for the conveyance of troops and warlike supplies is to restrict the supply of certain commodities available in the market. This is particularly true of an island such as Great Britain. Until the Armistice many commodities were very scarce in Great Britain and in other countries, just at a time when the needs of the Government and the feverish activity of the whole civilian population raised the demand for them to its highest. This was an influence which, by diminishing the number of transactions, worked all through this period on the side of higher prices.

Scarcity was, indeed, frequently given the first place in contemporary explanations of the rise in prices. But scarcity of goods could not have explained a threefold increase of the price-level unless the volume of goods to be sold had shrunk to one-third of its previous dimensions, which, of course, was not at all the case. The true explanation of so large an increase in prices, as in the case of all other similar upward movements of the price-level, was not so much scarcity of goods as abundance of money. But the rise in prices in the war period was due to an increase in the supply of money.

At the end of 1913 the volume of money of all kinds in existence in the United Kingdom consisted of about £123,000,000 in gold, £34,000,000 in silver, £57,000,000 in bank notes, and £1,006,000,000 in bank deposits, a total of £1,220,000,000. At the end of 1919, gold had disappeared from circulation, but the means of exchange consisted of £77,000,000 in silver, £459,000,000 in paper money, and about £2,300,000,000 in bank deposits, a total of £2,836,000,000, or about 232 per cent of the 1913 total. Here, clearly, is the major explanation of the rise in prices.

Issue of
Currency
Notes.

The outbreak of the war induced a serious crisis in all the money markets of the world, but more especially in London, where both the acceptance houses and the Stock Exchange were owed large sums by foreign clients which it suddenly became impossible to collect. This situation was met, in part, by an extended moratorium, but there was reason to fear that the public, believing the position of the banks to be affected, would demand the redemption of its deposits in cash. In wartime conditions it was impossible suddenly to import gold to meet so huge a demand and the reserve of the Bank of England was insufficient for the purpose. It was consequently decided that the Treasury should print Currency Notes and issue them to the banks as a loan, interest being charged at Bank Rate, which was raised to 10 per cent. It turned out that the public demand for currency was small and temporary and most of the Currency Notes issued in August had been returned by the end of September. Bank Rate was reduced to 5 per cent on August 8.

Once the Currency and Bank Notes Act had been passed, however, the powers which it conferred upon the Treasury to meet a temporary emergency were used to facilitate the fiscal policy of the Government throughout the war. It soon became apparent that the vast cost of the war could not be financed wholly or even mainly out of taxation. Existing taxes were, indeed, steeply raised and new taxes imposed, but in the six financial years 1914 to 1920 little more than one-third of the Government's expenditure was covered by tax revenue. The remainder was borrowed.¹ In so far as it was borrowed directly from the savings of the public, there need have been no increase of money or rise of prices. Borrowing of this nature gives the Government power to command

¹ It is worthy of note that none of the other European belligerents raised in taxation even as much as one-third of their wartime expenditure.

goods and services, without increasing the goods and services available, but an equal amount of purchasing power is withdrawn from the public. But it proved impossible to raise in this way the vast sums required, and the Government was forced to pursue the easier course of creating money.

Deficits in the Budget not covered by taxation or loans from the public were met in part by an advance from the Bank of England to the Treasury. As the Government spent these sums and the recipients paid in their cheques to their various private banking accounts, they were transferred at the Bank of England from Public Deposits to the accounts of the joint-stock banks which appear under the item "other deposits". These other banks thus increased their deposits with the Bank of England, which serve as part of their reserve of cash against their own liabilities. Their cash reserves having increased, they were able to multiply their advances—in accordance with ordinary banking practice—and they accordingly advanced money to the Government, or granted advances to their customers to enable them to buy Government loans. Thus the whole credit structure was expanded to meet the Government's needs. The amounts borrowed by the Treasury from the Bank of England or from the joint-stock banks, either directly or indirectly through the loan subscriptions of the public made possible by an expansion of bank credit, enabled it to bid for goods and services. But since this money was newly created, no equivalent amount of purchasing power was withdrawn from the public. As a natural consequence, prices rose.

Budgetary deficits were covered by the creation of money.

At any previous time, this process would soon have been checked. Any increase in the volume of bank credit tends to cause a proportionately equally increased demand for currency. An expansion of bank credit by Government

The restraining influence of the gold standard was absent.

borrowings would tend to be followed by an increase in the volume of currency in circulation. Before 1914 the only reservoir of additional currency was the reserve of the Bank of England. Moreover, as soon as prices began to rise as a result of the expansion of bank credit, gold would begin to flow out of the country. Hence there would be a twofold demand upon the reserve of the Bank of England, which would be forced to raise Bank Rate, restrict credit, and reverse the process of expansion.

In wartime, however, these checks did not operate. The reversal of a movement of expansion is, even in normal times, a disagreeable process, involving falling prices, unemployment, and business losses. In wartime, the need of avoiding industrial or commercial difficulties and the paramount necessity of facilitating the borrowings of the Government make a policy of stringency undesirable. The strain on the Bank's reserve was in fact avoided by the various emergency methods which were adopted. The currency could be almost indefinitely expanded by issuing Currency Notes without affecting the Bank of England's reserve. These notes were, in law, redeemable in gold, but as both the export and the melting of gold were prohibited there was no incentive to demand gold for them. Indeed, the process was reversed, for early in the war the public was requested to hand in its gold in return for Currency Notes, and from that time gold coins disappeared from circulation in Great Britain, never to return. Thus the reserve of the Bank of England was not affected either by the expansion in the currency or by the rise of prices, and the inflation was consequently allowed to proceed unchecked.

When such powerful forces were at work to expand the volume of currency, and in addition the normal character of commerce and industry was subjected to upheaval by

the needs and dangers of the war, it would be unreasonable to expect that all prices should have been equally affected. In point of fact, the movements of the individual series making up the wholesale price index were extraordinarily divergent, and these divergences will shortly be discussed. But, before doing so, it must be pointed out that in such abnormal times the wholesale price index is an even less satisfactory measure of changes in the value of money in general than in a normal period. In the first place, the technical difficulties of compiling such an index number are enormously increased in wartime. Markets are closed, prices are frequently purely nominal (especially for articles obtainable only on Government permit). Qualities change under pressure of new war requirements, and the unequal advance in quotations alters the relative influence which the price of particular articles exerts on the total. In the second place, wholesale prices at all times fluctuate more widely than other prices, but this discrepancy is increased in wartime by the fact that many of the wholesale commodities included are imported, and hence subject to restriction of supply and to the higher shipping freights necessitated by the risks of wartime, both of which lead to differential enhancement of price; other commodities are in particular demand for munitions.

The special character of the wholesale price index can be seen by comparing it with the Ministry of Labour's index of the cost of living. The two indices are shown in graphic form on Chart II at the end of the book. The cost of living lagged behind wholesale prices both in time and in extent—that is, it moved more slowly and less extensively. In March 1920, when the wholesale index touched its peak at 300 per cent of the 1913 level, the cost of living had reached only 230 per cent of the level of July 1914. It continued to rise, however, for eight months more, and did not touch

Inadequacy
of the
wholesale
price index
number.

The cost of
living.

its maximum of 276 until November 1920. Its decline was also delayed, and though the fall was checked somewhat in 1922, relative stability was not reached until about the beginning of 1923. It was thus lagging from eight to twelve months behind the wholesale price index.

The cost of living index, however, probably understates the rise of prices in general as much as the wholesale price index overstates it, since many of the prices which enter into the former index, notably rent, were kept artificially low by Governmental regulation. We cannot, therefore, do more than guess at the rise of the general price-level. Since the wholesale index and the cost of living were at almost the same figure, about 265, at the beginning of October 1920, the general price-level must have risen at least to that extent, and since at that time all prices save those of necessities at retail were falling, it must have been higher earlier in the year. We can say, as an approximation, that the general price-level at its highest was about 275 per cent of its pre-war level. On the other hand, we have already seen that the volume of money had increased, by the end of 1919, only to about 232 per cent of 1913. There was some further increase in 1920, but at its highest the volume of money never exceeded 250 per cent of the 1913 figure. How was it that the rise in prices was able to exceed the increase in the volume of means of exchange?

The rise of prices exceeded the increase in the supply of money,

The explanation is without doubt partly to be found in the general shortage of goods which reduced the volume of transactions during the war years below the normal. But that this is not the full explanation can be shown by the fact that in the eighteen months after the Armistice, when deficiencies in supply were rapidly being made up, the divergence between the curve of prices and the curve of money in existence showed little sign of diminishing and

probably, on balance, increased. The apparent paradox can be fully explained by the enhanced velocity of circulation of money in these years. During the war the needs of the Government provided an almost limitless demand for products of all sorts, and the period from November 1918 to the spring of 1920 was full of the rosiest dreams of the profits that were to be earned in the reconstruction of a shattered world. Nearly all forms of industry were active and profitable; employment was plentiful and, as we shall shortly see, well rewarded. In short, this was a boom period. In such times money always circulates more rapidly than at other times. Confidence is high, the incentive to build up cash reserves is small, and opportunities for the profitable investment of money are frequent. Moreover, in these months prices were rising so rapidly that any money which was not spent but kept in the form of cash dwindled from month to month in purchasing power. All these causes were operating to induce an increase in the rapidity with which money changed hands, and thus to bring about an even greater rise of prices than was justified by the increase in the volume of money in existence.

owing to
the in-
creased
velocity of
circulation.

It has been mentioned that the cost of living rose to such an extent that at one time it was two and three-quarter times the level of July 1914. This rise was accompanied by an increase in wage rates. In previous chapters it has been pointed out that in periods of rising prices any increases in wage rates which are obtained by labour are often of smaller extent than, and usually follow some time after, the rise in the cost of living, so that such periods usually involve a fall in the standard of living of the working-class. To some small extent this was true during the war years, and some sections of the middle class, such as the professional and lower salaried groups, suffered severely from the "time-lag" between the

rising cost of living and the increases in their own incomes. But the working-classes, owing to the obvious necessity for wage increases and the desire to avoid disputes in wartime, suffered less in this way than in any previous period of rising prices.

There are serious statistical obstacles to the measurement of changes in wage rates during a period of such revolutionary changes in labour relationships as the war years. The sudden expansion of some industries and the relative contraction of others, the drafting of men into the army and their replacement by women and boys, upset the basis upon which averages can be based. Furthermore, there was a marked tendency for the unskilled grades of labour to secure higher proportionate increases in wages than the skilled grades. The standard rate for bricklayers, for example, rose from 10d. an hour in 1914 to 22d. an hour at the beginning of 1920, an increase of 120 per cent, while bricklayer's labourers' wages rose from 6½d. to 18½d. an hour, an increase of 185 per cent. In view of these difficulties, any index of wage rates must be approximate. Professor Bowley¹ has calculated a "general rough average" of changes in wage rates in twelve trades, which is shown in the table on the next page, together with the Ministry of Labour's index of the cost of living.

It will be seen that the increases in wage rates lagged behind the rise in the cost of living until the end of the war. In 1919 and 1920, however, they not only caught up but forged ahead, and wage increases were continued throughout the summer of 1920, even after prices began to fall.

An index of wage rates, however, even if it could be accurately compiled, would provide only a poor indication of the

¹ *Prices and Wages in the United Kingdom, 1914-1920*. By A. L. Bowley. Oxford: Clarendon Press, 1921, pp. 105-106.

movement of total earnings and of the standard of living of the working-class. Throughout the war years, overtime and night work at above the standard rates were frequent, and the greater opportunities of employment for women and boys at relatively high wages increased the income of the family. Furthermore, there is reason to believe that the cost of living index number overstates the rise in the cost of providing those commodities which were actually consumed in these years, owing to the fact that the official index attaches importance to the various items in proportion to

CHANGES IN WAGE RATES AND THE COST OF LIVING, 1914-20

	Wage Rates	Cost of Living
July 1914 . . .	100	100
„ 1915 . . .	105 to 110	125
„ 1916 . . .	115 to 120	145
„ 1917 . . .	135 to 140	180
„ 1918 . . .	175 to 180	205
„ 1919 . . .	210 to 215	210
„ 1920 . . .	260	252

the expenditure of a typical working-class family before the war. The necessities of wartime compelled many substitutions, such as that of margarine for butter, while many luxuries were unobtainable. The *Labour Gazette* expressed the opinion that “when allowance is made for such changes in dietary as are estimated by the Ministry of Food to have taken place, the increase in the average expenditure on the above articles is only two-thirds of the rise in prices”. Taking these various considerations into account, and allowing for the almost total absence of unemployment in these years, it will be seen that the real income of the working-class suffered no decline in this period in spite of the rapid rise of prices. On the contrary, the war years and the immediately succeed-

ing boom will long be remembered as a period of astonishingly rapid advance in improving the conditions of life and work of the poorer classes of society.

Methods of
changing
wages.

The following table is of interest as showing the methods by which increases of wages were secured (the figures do not include agricultural labourers, domestic servants, shop assistants, or clerks; railwaymen and seamen are included only in 1915 and subsequent years, and government employees only in 1910-13):

METHODS BY WHICH CHANGES IN RATES OF WAGES
WERE ARRANGED

Year	Number of Individuals whose Wages were changed.		
	Without Stoppage of Work		After Stoppage of Work
	By Sliding Scales	By Other Means	
1910	40,000	498,650	10,275
1911	54,000	713,000	149,150
1912	63,200	1,690,040	61,800
1913	64,000	1,666,000	170,000
1914	118,000	822,000	67,000
1915	108,000	4,115,000	82,000
1916	114,000	4,668,000	66,250
1917	145,000	6,183,000	35,000
1918	157,000	6,727,000	40,000
1919	409,000	5,706,000	125,000
1920	629,000	5,875,000	1,364,000

These figures are not complete, but they show with what success labour disputes were avoided during the war. Even in 1920, when strikes became of importance, the number of wage increases secured by this means was only one-sixth of the total. Sliding scales became more popular as changes in prices came to be more widely expected, but it is surprising that they were not more widespread, since they provide a simple method of adjusting wage rates to changes in the cost

of living. Moreover, most of the sliding-scale agreements covered by the table were those in force in the iron and steel industry, where the criterion was not the cost of living but the price of the industry's products.

One more advance in the standard of living of the working-^{Hours of Work} class remains to be recorded. An Industrial Conference of employers and workers was called by the Government in February 1919, three months after the Armistice, and one of its first recommendations was that a statutory forty-eight hour week should be established. This recommendation was never given statutory effect, and an international convention for the forty-eight hour week drawn up at the first International Labour Conference at Washington in 1920 was not ratified by the British Government. But a widespread movement for the reduction of hours took place in 1919 and 1920, as can be seen from the following table (which is subject to the same limitations as the preceding table):

CHANGES IN RECOGNISED HOURS OF LABOUR

Year	Number of Workers affected.	Aggregate Net Decrease of Hours per Week.
1910	27,500	47,500
1911	155,400	715,000
1912	105,000	210,000
1913	149,750	361,000
1914	93,900	296,000
1915	21,120	63,000
1916	23,300	100,000
1917	34,400	120,000
1918	149,750	568,000
1919	6,306,150	40,651,000
1920	572,000	2,114,000

The average reduction in 1919 was nearly $6\frac{1}{2}$ hours a week, or more than one whole hour in each working day. This

probably represents an even greater advance in the standard of living, if the intangible aspects of the phrase be taken into account as well as its material connotations, than the rise in wages and the differential improvement in the earnings of the less well-paid ranks of labour; for the acquisition of leisure opened the way to a number of forms of culture and recreation which were beyond the reach of the working-class before the war.

Methods of
controlling
Prices

We have now to consider the course of prices in more detail. In order to show the change in particular commodities since the beginning of the war, the *Economist* index number has been classified on the same principle as that adopted in some of the previous chapters. At the outset, however, the qualification must be made that individual prices during the war cannot be accepted, as in ordinary times, as an indication of the economic conditions applicable to a particular commodity, owing to the general introduction of control of prices in some form or another in most of the belligerent countries.

Broadly, three main methods of control were practised:

(a) The Government bought the whole supply of an article available for a given country, and sold or released it on definite terms, which might, or might not, involve the Government in a loss.

(b) The Government fixed a price,¹ and if costs of production, either individually or generally, increased beyond this figure, met the balance from Government funds.

(c) The Government fixed a price and revised it from time to time as conditions varied.

These methods were all employed, singly and in combination, and with infinite variation. Political considerations and

¹ Frequently, in France and Italy, there were several prices fixed to provide for local variations.

the varying fortunes of war, moreover, caused them to be applied in the various countries and for various articles at different dates. But hardly any articles entirely escaped the effects of control.

Imported articles were mainly dealt with by Government purchase. Where the sources of supply were within the Empire, or in Allied control, the whole supply could be purchased at a definite price, by agreement with, or in collaboration with, the Government of the producing country. Tungsten, Australian wool, spelter, and lead were dealt with in this way. In other cases, competition in buying was eliminated, as far as possible, by the setting up of national ¹ or international purchasing machinery. The most important example of the latter was the Wheat Executive, as it was the first case of international executive machinery set up by the Allies. The endeavour to exercise control, or at all events a moderating influence over prices, by organising the purchasing side of the market (and it must be remembered that Allied control included a certain measure of control over the purchases of European neutrals by means of the blockade) was enormously simplified by the entry of the United States of America into the war, as the American supply, combined with that from the British Empire, enabled the Allies to command the production of the greater proportion of most of the articles concerned.

Even in cases where the supply remained outside the direct control of the Allied and Associated Powers, as in the case of Chili nitrate, the entry of America into

¹ The purchase of iron-ore in Spain was regulated by the Ministry of Munitions, the individual merchants continuing to operate but under instructions. The fact that Germany was out of the market enabled Great Britain to keep the price in pesetas almost at pre-war level. Its price in Great Britain was of course enormously enhanced by the cost of transport, and to a less extent by the unfavourable rate of exchange of pesetas for pounds. Pyrites, on the other hand, was purchased in Spain mainly on Government account.

the war removed from the market the chief independent buyer.

The chief examples of the second kind of control in Great Britain are the coal trade, the iron and steel trades, and railway transport. In the case of the iron and steel trades, the costs were ascertained by investigations from time to time in the different localities, and the Government's contribution to the industry was paid partly as a subsidy on imported ore, partly as a subsidy to pig-iron manufacturers, and partly to the steel makers themselves. In the other two cases mentioned, the balance due by the Government was estimated in a single payment—the Government making up in the case of the railways an amount sufficient to enable pre-war dividends to be paid, and in the case of the coal trade imposing a fixed price, and paying increased costs as they arose.

There are various instances of the third kind of control, which was practically the universal method adopted in the United States of America.¹

Under all three of them, the restriction of imports and exports was an essential part of the machinery of regulation.

Price
regulation
in war
and peace.

Before leaving this subject some general comments may be made. Attempts to stabilise prices, whether by the action of trusts or of Governments, have in modern times usually ended in failure. But the belligerent countries during the war did, in fact, succeed in holding prices of many commodities steady for long periods. In previous cases, however,

¹ The success in America of the less stringent form of control must be considered in the light of the facts (*a*) that prices under the stimulus of Allied demands had already risen a great deal by the summer of 1917, when American prices began to be fixed, (*b*) that with less proportionate inflation of currency than in Europe there was less further pressure of prices in an upward direction; and (*c*) that the war absorbed a much smaller proportion of the national output than in European countries, leaving a much larger field for the carrying on of ordinary business.

the rock on which stabilisation schemes have been wrecked is the inability to control the world's production of any given commodity, or to prevent the substitution of one commodity for another in the market or in production. But there is an essential difference between war- and peace-time experience in the fact that prices, during the war, ceased to perform their normal function of determining into what channel the labour and capital of the nation should flow, or how much should be produced from a given factory, farm, or mine. In all the more important economic activities of the country this was determined by the programmes of production, arranged by the main purchasing departments of the Government, and completed and enforced by the system of priority certificates, which determined the order of production in every factory in the country. This system, together, on the one hand, with import and export restrictions and Government control of shipping, and, on the other, with the limitation on the free movement of labour (through "badging", "leaving certificates", enrolment of war munition volunteers, and, after the institution of conscription, through conditions attached to exemption from military service) and capital (through the Treasury regulation of capital issues), formed a completed whole under which prices no longer acted as the regulator of production or the index of demand, but merely performed the function of supplying the, to some extent, arbitrary remuneration of the various factors of production. This supersession of ordinary economic influences was only possible in circumstances where every demand could be tested not by price but by reference to the war programme, and where individual action was regulated—at first voluntarily under patriotic impulse and later under compulsion—by the same test. Hence, nearly all prices were by the end of the war held at a steady figure, some too high in relation to

costs or the balancing of supply and demand under competitive conditions, some too low, but in either case without any appreciable reaction so far as internal productivity under war conditions was concerned. Thus the experience of the war can teach us little on the possibility of regulating prices under a less complete system, though the experience of many of the controlling departments, while the system was being evolved, shows what are the difficulties.

There can, however, be little doubt that with very restricted supplies available for civil needs, and in the absence of a market in which supply and demand could create a normal price, internal prices would have been very erratic and civilians subjected to much more exploitation than actually occurred if there had been no control.

Relative
price
changes.

The measures of control were gradually relaxed after the Armistice, but the normal relationships between demand and supply were far from restored when the price rise reached its highest point. The table on next page is therefore as much an indication of the effects of Government control of prices and supplies as an example of the normal workings of the economic system.

Rubber.

Flax.

One of the most striking contrasts in this table is that between rubber, an article which was not controlled during the war, but which nevertheless actually fell in price, and flax, which, in spite of being controlled, shows almost the largest rise. In the one case, the systematic cultivation of rubber, which was introduced between 1905 and 1910, began to produce its effect when the central and eastern European market was closed; while in the case of flax, access to Russia, the chief source of supply, was rendered extremely difficult, and the Allies were set the severe problem of meeting an enormous demand for aeroplane fabric, in addition to other war demands for linen, from a very exiguous supply. The

position of sugar is of course explained by the fact that Sugar. the war cut off the supply of beet sugar from Europe, which before the war supplied half of Great Britain's annual requirements.

ANALYSIS OF THE RISE IN PRICES BETWEEN JULY 1914
AND MARCH 1920

(Average rise 218 per cent)

Articles which rose less than the Average.	Articles which rose about the Average.	Articles which rose more than the Average.
per cent	per cent	per cent
Rubber . (- 8)	Tin . . . (+ 190)	Petroleum (+ 251)
Household	Crystals . (+ 194)	Austrahan
coal . (+ 19)	Pork . (+ 195)	wool . (+ 288)
Flour . (+ 55)	Oats . (+ 200)	Pitch pine (+ 289)
Mutton . (+ 60)	Hemp . (+ 202)	Barley . (+ 297)
Canadian	Steel rails . (+ 229)	American
wheat (+ 72)	Potatoes . (+ 232)	cotton . (+ 313)
Beef . (+ 90)	Iron bars . (+ 234)	Indigo . (+ 355)
English	Pig-iron . (+ 239)	Oil seeds . (+ 355)
wool . (+ 91)		Rice . (+ 372)
Canadian		Silk . (+ 392)
timber (+ 95)		Sugar . (+ 464)
Copper . (+ 101)		Cotton
Tobacco (+ 105)		cloth . (+ 466)
Tallow . (+ 106)		Cotton
British		yarn . (+ 518)
wheat (+ 112)		Flax . (+ 680)
Leather . (+ 116)		Egyptian
Butter . (+ 136)		cotton . (+ 975)
Jute . (+ 142)		
Coffee . (+ 154)		
Steam coal (+ 162)		
Lead . (+ 168)		
Oils . (+ 174)		
Tea . (+ 183)		

Some of the articles in the list would have been in different columns if the comparison had been made at the end of 1918. Wheat, butter, tallow, lead, and steam coal are

Price
changes,
1918-20.

examples of articles whose prices did not rise so fast relatively to the average after the Armistice as before. On the other hand, Australian wool, barley, and oil seeds were relatively lower in 1918 than in 1920. Some of these alterations are of course due to the partial reopening of Central Europe both as a market and as a producer, while others are due to the release of supplies which had been held up during the war by transport difficulties. Indeed, the acute shortage of tonnage, the geographical distribution of the world's available shipping, and very high freights, played no small part in causing the divergences in price movements in the eighteen months following the war. The enormous "dispersion" of the individual items—that is, their divergences from the average—illustrates the extent to which each article was subject to its own complicated conditions of demand and supply, as well as to the common factor of monetary inflation.

The rise of
prices in
foreign
countries.

The same causes which brought about the suspension of the gold standard and the great rise in prices in Great Britain were also at work in the other belligerent countries and, indeed, in most of the neutral states. The details of the process by which the currency was expanded and prices raised differed, of course, from country to country, and the extent to which it was carried was very much greater in some countries than in others. But the general outlines of the currency history of Great Britain in the years 1914 to 1920 could be applied to nearly every other country in the world. Every European nation found it necessary to suspend the gold standard, most of them because the internal expansion of credit threatened to lead to large exports of gold, but some of the neutrals (such as Sweden) because the great pressure of demand for their goods led to imports of gold larger than could be accommodated in their financial systems.

The United States contrived to remain on the gold standard

throughout the war; this does not, however, mean that she avoided an expansion of credit and a rise of prices. In fact, the total of currency issued at the end of 1919 was about 178 per cent of the volume in circulation at the end of 1913, while bank deposits had risen to about 211 per cent and the price-level to about 225 per cent of the 1913 level. A number of factors combined to enable the United States to maintain the convertibility of her currency into gold in spite of this large expansion. In the first place, since nearly every other country had suspended the gold standard, there was little reason for gold exports from America. In the second place, the expansion of credit and the rise of prices was nearly everywhere more rapid than in America. Thirdly, the demand by the belligerent powers for American goods was so large that America was enabled not only to redeem virtually the whole of her debt outstanding in foreign hands and transform herself from a debtor nation to the second largest creditor in the world, but also to import more than \$1200 millions worth of gold. These imports increased the gold stock of the country by about 65 per cent and thus permitted the currency to be expanded without repealing the legal requirements as to gold cover for the circulation. Finally, the Federal Reserve system, which came into operation in the autumn of 1914, imparted a much greater degree of elasticity to the American currency and credit structure than had previously existed.

The rise of prices was thus spread over the whole world, although in differing degree according as the various countries were more or less afflicted by the exigencies of war-time finance. The following table shows the rise of the index numbers in fourteen countries by March 1920. Though the index numbers in this table are compiled in different ways and in many cases are not strictly comparable, they serve to

illustrate at once the variety of experience and the common fact of an enormous rise of prices resulting from the war. The table also shows the New York foreign exchange quotations of the different currencies :

MOVEMENT OF PRICES AND FOREIGN EXCHANGES BETWEEN
1913 AND 1920

Country.	Wholesale Price Index Number, March 1920 as Percentage of Average of 1913.	Value of Currency in terms of the Dollar, March 1920 as Percentage of 1913.
United States	234	100
India	198	96
Japan	322	96
Netherlands	283	92
Spain	218	91
Canada	258	90
United Kingdom . .	299	77
Sweden	366	76
Norway	351	68
Denmark	383 (a)	63 (a)
France	555	37
Italy	602	27
Finland	1034	26
Germany	1709	5

(a) June 1920.

Source. League of Nations Memorandum on Currency, 1913-1922.

It will be noticed that the order of countries arranged according to a descending scale of currency values is also broadly the same as that of an ascending scale of price rises. This is indeed what would be expected on theoretical grounds, for a rise of prices connotes a fall in the internal purchasing power of the currency and its external value—that is, its power to purchase foreign currencies—should vary in roughly the same way as its internal value. But since the value of gold itself fell, owing to the inflation of the only gold currency, the dollar, the exchange values of the other currencies tended to

fall below that of the dollar only to the extent that their price rises exceeded that of the United States.

2. 1920-1922. PRICES FALLING

The wholesale price index reached its highest point in the spring of 1920. For three months it declined slowly, and there was some excuse for thinking that the interruption in the upward trend was only temporary. Optimism was consequently maintained; retail prices continued to rise and wage increases were granted as readily as before. But by the summer it became clear that conditions had radically changed. Prices started falling with astonishing rapidity, leaving behind them the wrecked fortunes and the shattered hopes that had been based upon an indefinite continuance of inflation. By the end of 1920 unemployment had become a serious problem. Throughout the next year the downward tendencies continued, and some measure of stability was not reached until the beginning of 1922, when at last the fall of prices was halted and the wholesale price index settled down at approximately 150 per cent of the pre-war level. The cost of living and the level of money wages, which had not turned down for some months after the wholesale index began to decline in 1920, were also slower in finding their new level, and did not finish their downward movement until the autumn of 1922. Unemployment, however, was falling and the level of activity of business rising after the spring of that year. It is this downward phase of the great war cycle of prices which we must now discuss.

The period of rising prices and widespread optimism, which lasted for eighteen months after the Armistice, was a boom of prices rather than of production. In so far as it had any basis in reality it was occasioned by the effect produced by

The
collapse
of 1920.

Nature
of the
boom of
1919-20

the slight revival of demand following the end of the war upon a productive mechanism which was in part shattered and in part still converted to warlike uses. Merchants found in the early months of 1919 that it was difficult to secure delivery of even the most modest orders. The practice consequently grew up of placing duplicated orders, of ordering the same goods from a number of different factories in the hope that one of them would be able to make delivery. This naturally gave the appearance of an almost endless demand for the products of industry. Industrial optimism, engendered in this way, was nurtured by the belief that there would be profits to be earned for many years to come in the task of repairing the devastations of war. Industrialists consequently competed wildly with each other to secure their supplies of raw material, and investors to secure a share in the profits of industry. As in all such periods, money circulated very rapidly, and the wave of speculation carried prices to ever higher levels.

Cessation of
inflation.

Meanwhile the causes which had produced the inflation of the war years had largely ceased to operate. There was a budgetary deficit in the financial year 1919-20, but it was very much smaller than in the previous years and it was financed by selling Victory Bonds to the public. As these bonds were very largely purchased out of the savings of the public there was a transference of purchasing power from the public to the Government, but no such creation of fresh purchasing power as would have justified the rise in prices. Ways and Means Advances from the Bank of England to the Treasury, which in the war years had been the means of initiating the great expansion in bank credit, were actually reduced during 1919. Credit had been kept cheap during the war in order to facilitate the borrowings of the Government, but this attitude was changed after the Armistice, and gave

place later in 1919 to definite anxiety over the excessive expansion of credit. In November 1919 Bank Rate was raised to 6 per cent, usually regarded as a very high level. In December, on the recommendation of the Cunliffe Committee, a Treasury Minute was issued limiting the issue of Currency Notes in any year to the highest figure issued in the previous year—a clear statement of the intention of the Government to allow no further inflation.

In these ways the authorities were attempting to check the movement of expansion. But for the moment their efforts seemed to have little or no effect. Other activities of the Government were, indeed, tending to encourage the rise of prices. The gratuities given to discharged soldiers were swelling the volume of money in circulation, while the delay in collecting the sums due for Excess Profits Duty allowed firms to retain, and frequently to use as circulating capital, vast sums which were due to the Treasury. But these influences were negligible beside the great strength of the speculative fever. There was an enormous demand for credit of all sorts, and the volume of monetary transactions was swollen day by day. Deposits with the joint-stock banks increased from £1,583,000,000 on January 1, 1919, to £1,762,000,000 on July 1, and to £1,874,000,000 on December 31—an increase of over 18 per cent in twelve months. The speed with which this volume of purchasing power was turning over increased even more rapidly, as can be seen from the figures of bank clearings, which averaged £80,000,000 on each day in January 1919, and increased to £104,000,000 in July and £128,000,000 in January 1920—an increase of 60 per cent. The highest figure of £136,000,000 was not reached until March 1920.

This wild increase in the demand for bank credit was in the end its own undoing. The banks were under the necessity ^{Causes of} the collapse

of increasing their holdings of cash in order to preserve their usual reserve ratio against the swelling total of deposits. Since the Bank of England was no longer providing increasing supplies of cash by increasing its advances to the Treasury, the only way in which the joint-stock banks could obtain cash was by selling their holdings of Treasury Bills. The Treasury consequently found it more difficult to sell its Bills, and had to choose between allowing the rate at which the Bills were discounted to rise, thus making credit still dearer or, alternatively, inflating credit still further by borrowing from the Bank of England. The Treasury chose the former course. In the third week of April 1920 the rate of interest on Treasury Bills suddenly rose, and on the next day Bank Rate was raised once more. This might have had no more effect than the previous increase in November 1919, had it not coincided with a time when the appreciation of realities was beginning to penetrate the rosy haze of optimism. Production was once more getting into its stride, and the gradual increase in the supply of goods led to the cancellation of many of the duplicated orders which had previously been placed. At the same time it began to be realised that though the needs of the devastated countries of Europe were great, their buying power was extremely limited. British industry might, indeed, still play its part in reconstruction, but it must be done either as a gift or on terms of extended credit. In neither case were there large immediate profits to be made.

The boom of 1919-20 consequently broke down of its own weight; the bubble burst because it had swelled too far. It has frequently been stated that there was a deliberate act of deflation on the part of the Government. This is non-proven; the truth seems to be that the Government's part in the reversal of the trend consisted of nothing more definite

than a refusal to condone any further expansion of credit. At no time was there a positive contraction of credit. After the crash came, the authorities were, it is true, slow in accommodating themselves to the new conditions. The high Bank Rate was maintained until after the end of 1920 and the Excess Profits Duty was continued for the year 1920-21—a year in which excessive losses were more common than excessive profits. But these events occurred after the transformation of spring 1920 and can have had no part in its causation. In the last analysis the price level of March 1920 collapsed because it was based upon speculation and unrealities.

The decline in the different price-levels was neither simultaneous nor equally extensive, as can be seen from the following table, which compares the movements of the wholesale price index, the index of the cost of living, and Professor Bowley's index of money wage rates from the first quarter of 1920 to the first quarter of 1923:

Relations
between
wholesale
prices, the
cost of
living and
wages.

MOVEMENTS OF PRICES, 1920-23

Average of	Wholesale Price Index.	Cost of Living.	Index of Wages.
1920—1st quarter . .	290	228	231
2nd „ . .	290	242	250
3rd „ . .	277	256	267
4th „ . .	233	270	273
1921—1st „ . .	185	252	276
2nd „ . .	170	227	268
3rd „ . .	168	220	244
4th „ . .	153	204	228
1922—1st „ . .	146	189	215
2nd „ . .	148	181	203
3rd „ . .	146	181	189
4th „ . .	145	179	178
1923—1st „ . .	148	177	177

It will be seen that the wholesale price index shows a con-

tinuous and very rapid fall from the second quarter of 1920 to the first quarter of 1922, in which period it was almost exactly halved. The cost-of-living index, on the other hand, continued to rise until the last quarter of 1920 and did not complete its steep fall until the second quarter of 1922. Even then its fall was only about one-third, and the discrepancy between it and the wholesale price-level was so large that it continued to show signs of weakness. The index of wages did not reach its maximum until the first quarter of 1921 or its point of stability until the end of 1922; the extent of its fall was approximately that of the cost of living.

Changes
in the
volume of
money.

This fall in prices was one of the most sudden and extensive that the world has ever known. It has already been pointed out that in origin the fall of prices was probably not due to any restriction in the supply of money, but rather to the collapse of the speculative boom. This is borne out by an examination of the monetary statistics of the period. The volume of purchasing media did, indeed, fall between 1920 and 1922, but in a proportion not nearly so great as that of the fall of prices. The total of Bank of England and Currency Notes in circulation in March 1920 was £426,100,000; two years later the total had fallen to £402,600,000, a fall of $5\frac{1}{2}$ per cent only. The deposits of the nine London clearing banks fell from £1,810,000,000 in January 1921¹ to £1,693,000,000 in January 1923, a fall of $6\frac{1}{2}$ per cent. It is clear, then, that there must have been a considerable decline in the velocity of circulation of money. At the height of the boom in 1920 that velocity was greater than normal: the craze for buying commodities and securities was so great that no one was willing to keep cash in hand for longer than was necessary. Conversely, at the bottom of the depression

The
velocity of
circulation.

¹ The figures for 1920 are complicated by the wave of bank amalgamations which took place in that year.

the velocity of circulation of money was abnormally low. There was a plentiful supply of credit for all who needed it; the difficulty was in persuading the public to make use of the available supply. As will be seen in the next chapter, Great Britain did not succeed in winning back any high level of prosperity in the years after 1922, and the velocity of circulation of money remained below normal for the rest of the decade.

It remains to trace some of the effects of the fall in prices. That these effects were not more severe than was actually the case is to be attributed to the fact that the high price-level of 1919 and 1920 was never regarded as normal. Even prices which are usually considered to be fixed, such as postage rates, the price of newspapers, and some forms of salary and wage rates, were still on a temporary basis. The whole price structure had not had time to get adjusted to the higher level of prices, and it was consequently possible to reduce all prices more or less *pari passu*. It would, for example, have been almost impossibly difficult to reduce wage rates by one-third in two years if the workers had been accustomed to the higher rates for a decade and had come to regard them as their just due.

The fall of wage rates approximately kept pace with the ^{Wage rates.} decline in the cost of living, and for those who remained in work there was very little pressure for a reduction in the standard of living. The industrial depression was, however, accompanied by widespread unemployment. The number of unemployed registered at the Employment Exchanges rose from 1,277,000 in January 1921 to 1,936,000 a year later. In the summer months of 1921, when depression was complicated by a dispute in the coal-mining industry, the unemployed had totalled over 2,500,000. During 1922 the numbers slowly declined, and by January 1923 they were

1,464,000. By the middle of 1924 the total was only a little over one million. The Unemployment Insurance scheme, which had been initiated in 1911 for a number of specified trades representing less than 4,000,000 workers, was extended in 1920 to cover substantially all manual workers and also non-manual workers earning less than £250 a year. This extension came into force in November 1920, just when the need for unemployment relief was becoming pressing, and though the subsequent months completely upset the actuarial basis of the insurance scheme, the benefits paid were the means of preventing the widespread destitution which would otherwise have ensued. Thanks to the unemployment benefit included in the income of the working-classes, a larger part of the improvement in the standard of living which had been secured during the war years was retained through the depression which followed, although the existence of unemployment meant that the higher standard was less equally distributed among the working population as a whole.

The table on the next page shows the method by which the great fall in money wage rates was accomplished.

It will be seen that in spite of stoppages in a few industries, notably coalmining and cotton textiles, the great bulk of the adjustments were made peacefully. Sliding scales were alone responsible for more than half of the recorded changes. These sliding scales were widely adopted in the period immediately after the war as a means of transmitting to the workers a share in the benefits of rising profits and prices. In the event, however, they served to secure a peaceful transition to a lower level of prices and wages. As most of the sliding scales were related directly or indirectly to the cost of living, the reductions, though unwelcome, were not considered unfair. Nevertheless the knowledge that a sliding scale could work downwards as well as upwards somewhat

diminished the popularity of the device among the trade unions.

METHODS BY WHICH CHANGES IN RATES OF WAGES WERE
ARRANGED

(Decreases only)

Method.	Aggregate Weekly Amount of Decrease in Wages Arranged	
	1921	1922.
Without stoppage of work—		
Under sliding scales . . .	£3,672,700	£1,656,700
By conciliation	175,100	336,700
By arbitration	87,400	39,250
By other methods (direct nego- tiation, etc.)	2,388,400	2,183,100
Total	£6,323,600	£4,215,750
After Stoppage of Work—		
By conciliation	£800	£950
By arbitration	3,560	1,030
By other methods	378,200	154,120
Total	£382,560	£156,100

The other elements in the standard of living of the workers is the average hours of work. The following table, which repeats for the sake of comparison the figures for 1919 and 1920, shows that the great gains of these two earlier years were preserved in the depression years that followed:

CHANGES IN RECOGNISED HOURS OF LABOUR

Year.	Number of Workers affected.	Aggregate Net Change of Hours per Week
1919	6,306,150	- 40,651,000
1920	572,000	- 2,114,000
1921	44,400	+ 14,500
1922	318,700	- 93,000

The slight increase in 1921, amounting to an average increase of 20 minutes per week for a very small number of workers, is mainly accounted for by changes in the textile and building trades.

Relative
prices.

It has been sufficiently emphasised in the foregoing paragraphs that the decline of prices between 1920 and 1922 was primarily the reaction from the inflationary rise in the five and a half preceding years. This statement is further borne out by an examination of the movements of the various individual prices making up the index:

ANALYSIS OF THE FALL IN PRICES BETWEEN MARCH 1920
AND FEBRUARY 1922

(Average fall 51 per cent)

Articles which fell more than the Average		Articles which fell about the Average.		Articles which fell less than the Average	
	per cent		per cent		per cent
Egyptian		Pitch pine	55	Tea	45
cotton	81	Hemp	53	English wool	40
Cotton yarn	72	Silk	52	Potatoes	37
American		Steel rails	52	Sugar	36
cotton	66	Coffee	51	Butter	34
Cotton cloth	65	Copper	51	Petroleum	33
Jute	64	Oats	51	Leather	33
Tin	64	Iron bars	50	British wheat	31
Rubber	64	Pig-iron	49	Pork	29
Oil seeds	64	Oils	48	Steam coal	29
Rice	60	Tallow	47	Indigo	25
Lead	59	Canadian		Beef	21
Barley	58	timber	46	Tobacco	12
Australian				Crystals	0
wool	58			Mutton	0
Flax	57			Canadian	
				wheat	+ 4
				Flour	+ 15
				House coal	+ 53

A comparison of this table with the one for the preceding period on page 137 will show that with few exceptions the

articles which rose more than the average during the inflation fell more than the average during the depression. Textiles and industrial raw materials were most affected by both the upward and downward swing of the price-level, while most foodstuffs were much more stable in price. One of the most striking exceptions to this generalisation is rubber, which actually fell in price during the war period when prices in general were rising, and in the period now under review again had one of the largest falls recorded. This was due to the reasons already mentioned, a steady increase in the scale and a decline in the expense of cultivation.

In conclusion, a word must be said about the behaviour of prices in other countries during these years. The sudden reversal of the upward trend of prices in the spring of 1920 was an international affair. The first check to rising prices and expanding prosperity seems to have occurred in Japan before the end of 1919. From Japan it spread to the United States and thence travelled eastwards to Europe. Not every European nation shared in it, however. In many of the formerly belligerent states the process of inflation was still in full swing. Governments were unable or unwilling to balance their budgets, and paid their way by borrowing from their Central Banks or quite openly by printing money. In these countries the world-wide deflation of 1920-21 could do no more than introduce a slight hesitation into the continuous rise of prices. It is also noticeable that these countries escaped, for the time being, the rapid decline in industrial production and the growth of unemployment which accompanied the fall of prices in the United States and Great Britain. But the extra-European states and those European neutrals who had balanced their budgets and were no longer expanding the basis of credit all had very much the same experience as has been described in detail in the case of Great

Prices in
foreign
countries.

Britain. In the United States the wholesale price index fell from 234 per cent of the 1913 level in March 1920 to 141 in February 1922. In Japan in the same period the fall was from 322 to 204, in Holland from 283 to 162. In Germany, on the other hand, the wholesale price index rose from 1709 to 4103, and in other countries the rise was even steeper. The following table compares the wholesale price index in February 1922 in the different countries with the value of their currencies in terms of the dollar:

MOVEMENT OF PRICES AND FOREIGN EXCHANGES BETWEEN
1913 AND 1922

Country	Wholesale Price Index Number, February 1922, as percentage of average of 1913	Value of Currency in terms of the dollar, February 1922, as percentage of average of 1913
Switzerland . . .	172	101
United States . . .	141	100
Sweden	179	98
Canada	169	97
Japan	204	96
Netherlands . . .	162	93
United Kingdom . .	145	89
Spain	179	82
Denmark	182	77
Norway	253	63
India	179	60
France	307	45
Belgium	356	43
Italy	562	25
Finland	1,255	10
Czechoslovakia . .	1,522	9
Germany	4,103	2.04
Austria	131,000	0.14
Poland	63,445	0.12

Foreign
exchanges.

As in the previous case it will be noticed that the countries with the smallest rise of prices are those whose currencies stand highest in value relatively to gold. Many of the excep-

tions to this rule can be explained by the lack of comparability in the wholesale price indices used. For example, it would appear from the table that the level of prices in February 1922 was almost the same with respect to the pre-war level in the United States and in Great Britain. But this is an accident of the fact that the British index number used in the table shows the smallest rise of any of the three British indices, while the American index used shows a larger rise than some of the other indices. The average rise shown for Great Britain by the index numbers of the *Economist*, the *Statist*, and the Board of Trade is 154-per cent. In the United States the average rise shown by four index numbers is 134 per cent. The difference between these two averages corresponds fairly closely to the difference between the exchange quotations of the pound and the dollar.

This table illustrates the fact that the great price fall of 1920-21 segregated the countries of the world into three rough groups. First there were the countries which had maintained their currencies at, or nearly at, their pre-war gold value, which include the United States, Switzerland, Sweden, Canada, and the Netherlands. Next there was a group of countries, including the United Kingdom, whose prices had risen more than those of the gold countries and whose currencies had consequently depreciated in terms of gold, but where the difference was not very great. This group can be said to include all the countries in the above table between the United Kingdom and India. Finally, there was a group of countries whose prices had risen and whose currencies had fallen so far that it was already obvious that a return to the more moderate paths of the other nations was out of the question. In these countries the higher level of prices and the low exchange value of the currency would ultimately have to be recognised as permanent.

BIBLIOGRAPHICAL NOTE

The story of economic developments during the war years must be sought in many sources. Among the most valuable are the series known as the *Economic and Social History of the World War*, issued by the Carnegie Endowment for International Peace, especially the following volumes: N. B. Dearle, *An Economic Chronicle of the Great War for Great Britain and Ireland*; Sir J. C. Stamp, *Taxation During the War*; A. L. Bowley, *Prices and Wages in the United Kingdom, 1914-1920*; Sir W. H. Beveridge, *British Food Control*; Sir J. A. Salter, *Allied Shipping Control*. An account of the events leading up to the collapse of 1920-21 will be found in a volume entitled *Is Unemployment Inevitable?* by a Committee presided over by Sir Walter T. Layton.

Statistical material will be found in the above volumes, in the *Statistical Abstract* and the *Abstract of Labour Statistics*, published by H.M. Stationery Office, and also in several publications of the League of Nations, especially the documents of the Brussels Financial Conference of 1920, and the series of Memoranda on *Currency and Central Banks* and *Public Finance* respectively.

CHAPTER XI

PRICES FROM 1922 TO 1937

THE great decline of prices after the war gave place to a comparative stability of price-levels in the course of the year 1922. The wholesale price index number was the first to cease falling: the figure for January 1922 was only half a point above the average for the whole year 1922 and actually below the average for 1923. The cost of living index, on the other hand, declined by 12 points between January and June and did not reach comparative stability until the second half of the year. The index of wage rates continued to fall throughout the year and January 1923 was the first month in which it failed to record a decline. It is impossible, therefore, to date the end of the period of falling prices more exactly than by saying that it occurred in the course of the year 1922. The same year marks the beginning of a new period in another sense, for it was at the Genoa Conference, held in the spring of that year, that the first official steps were taken to re-create the international currency system that had been smashed by the war.

The next seven years, from 1922 to 1929, were a period of comparative stability of prices. Emphasis should be laid upon the word "comparative", for there was a steady decline of prices which in pre-war days would have betokened anything but stability. The wholesale price index, for example, which averaged 146 per cent of the 1913 level in 1922, averaged only 135 in 1928, a decline at the rate of $1\frac{1}{4}$ per cent per annum, that is, nearly as rapid as the fall of 2 per cent per annum in the period 1874-96. Nevertheless by contrast

with the periods of rapid and extensive changes which both preceded and followed these seven years they appear as an oasis of stability. Moreover, the falling tendency of British prices was at least partly due to causes peculiar to this country. In the United States, for example, the wholesale price index number of the Bureau of Labour Statistics was only two points lower in 1929 than in 1922. Another reason for treating this period as one of stability is that it witnessed the gradual restoration of the gold standard in nearly every country of the world.

But a new
decline
began in
1929.

The same description cannot, however, by any stretch of the imagination be applied to the four years following 1929. In England the wholesale price index number fell from an average figure of 127 in 1929 to a low point of 81 in June 1932, while in the United States and in nearly every other country of the world the decline of prices was at least as severe. The post-war system of the gold standard, painfully built up in the preceding years, was shattered by the depreciation of many of the most important currencies of the world, including the pound and the dollar.

From their lowest point in the middle of 1932, prices slowly climbed upwards again, and by the early months of 1937 had regained more than half of their depression losses. These years also witnessed a rapid industrial recovery, which carried the figures of industrial production in Great Britain to higher levels than had ever previously been reached, while unemployment was reduced to approximately the same proportion as in 1929. The upward movement of prices was arrested in the spring of 1937, and unemployment began to rise in the autumn of the same year. It is still too soon to say whether these changes in 1937 marked the definite end of another period. But they form a convenient point for the present survey to close.

The period with which this chapter deals falls, therefore, into three sections. These sections will be taken in turn: first the period of reconstruction and stability, lasting from 1922 until the onset of the world depression in 1929; secondly, the years of falling prices, mounting unemployment and increasing monetary chaos, lasting from the autumn of 1929 until the summer of 1932; and finally the period of recovery from 1932 until 1937.

1. 1922-1929. STABLE PRICES

The level at which prices settled down to comparative stability in the course of 1922 was about 50 per cent above the level prevailing immediately before the war. This statement is approximate: the wholesale price index number found stability at about 145 per cent of the 1913 level, the cost of living and the level of wage rates at about 180. This disparity was one of the more permanent economic legacies of the war period. In part it was due to the longer period needed to adjust wages and retail prices to changing circumstances. The cost of living index, for example, showed a tendency throughout the period to decline towards the wholesale index and close the gap, but the falling tendency of the wholesale index itself prevented the two curves coming together. The difference cannot, however, be entirely ascribed to the delayed reaction of the cost of living; there were some semi-permanent influences working in the direction of a cost of living higher relatively to the wholesale price-level than before the war. Much the most important of these was the higher standard of living of the working-classes. The increases in real wages and the reductions in hours of work were not entirely offset by corresponding increases in the efficiency of labour, with the result that there was a general rise in the cost of labour. This tended to create

The post-war level of prices was about 50 per cent above the pre-war level.

The "gap" between wholesale prices and the cost of living.

a disparity between the wholesale price index and the cost of living, for labour—western industrial labour, at least—plays a comparatively small part in the price of most raw materials while it is much the most important element in the retail prices of most finished commodities.

This “gap” makes it particularly difficult to define with any accuracy the rise from the pre-war level of prices in general to the new level reached in 1922. A simple average of the two indices would give a figure of about 162 per cent of the pre-war level, but it should not be forgotten that the wholesale price index is based upon the year 1913 while the cost of living index is based upon the month of July 1914, and in any case there is no reason to believe that the general price-level can be assumed to be just midway between these two specialised indices. Even though this point cannot be accurately determined, however, it is clear that the new level of stability showed a striking increase compared with the period immediately before the war.

This higher level was maintained by economies in the use of gold.

How was it that a higher level of prices could be maintained? Following the general argument of the earlier chapters of this book, one would expect that only an increase in the production of gold sufficiently rapid to have increased the world's stock of the metal by one-half in eight years could have justified the maintenance of a level of prices 50 per cent higher than previously. In fact, however, the rate of production declined slightly during the war years, the value of the total production in the five years 1915 to 1919 being about £430,000,000, compared with about £470,000,000 in the five years 1910 to 1914.

This apparent paradox can be explained by the fact that considerable economies were achieved in the employment of gold as a monetary metal. In 1913 in England the monetary gold stock consisted of about £35,000,000 in the reserve of

the Bank of England and about £123,000,000 in circulation in the form of sovereigns and half-sovereigns. Of the total of £158,000,000, therefore, nearly four-fifths was circulating as currency, while the remaining one-fifth alone was available as a base for the credit structure. During the war, however, the gold in circulation was replaced by currency notes and the whole stock of the country concentrated in the Bank of England. In this way it was possible to base a larger pyramid of currency and credit upon the available supply of gold. In fact, the gold stock of the country was diminished by shipments to America during the war and amounted in 1922 to only £128,000,000, that is, about 80 per cent of the pre-war total. Nevertheless the total of media of payment in circulation (including bank deposits) was at the later date more than double the pre-war figure. In this respect, British experience was typical of most of the countries of the world. In some of the European belligerent countries the laws regulating the amount of gold which was to be held as a reserve for the currency were entirely suspended, and any comparison of the fluctuations of their gold stocks with those of their currencies would be quite irrelevant. But in other countries, such as Great Britain and the neutral European countries, although the convertibility into gold of the currencies was suspended, the legal necessity for preserving some reserve of gold against the notes outstanding was maintained. In these countries an expansion of the currency was secured, as in Great Britain, by concentrating the available stock of gold in the reserves of the Central Banks and increasing the ratio of notes to gold.

In the United States, gold was not called in from circulation among the public. An increase in the efficiency with which gold was used was, however, attained by the setting up of the Federal Reserve system, which began operations in

the autumn of 1914, under which notes could be issued against a gold reserve of 40 per cent of the value of the notes. This enabled one dollar of gold to support two and a half dollars of paper money, a higher ratio than had been possible under the legislation previously in force. Most of the expansion of the American currency, however, was due to the fact that throughout the war the United States imported gold in payment for munitions and other war supplies sold to Europe. In consequence, the gold stock of the country increased from \$1,890,000,000 in 1914 to \$3,784,000,000 in 1922, an increase of almost exactly 100 per cent.

The higher post-war price-level was, then, made possible by the concentration of gold reserves in the central banks of Europe, by the general use of paper money instead of gold coin, and, in the case of America, by the redistribution of the world's gold stocks in favour of the United States. The best way of describing what had happened is to say that there had been a "gold-inflation". The chain of circumstances mentioned above had combined to produce the same effect as would have been exerted by an actual increase in the world's stock of gold. America had actually had her stock doubled; the other countries had contrived by concentrating their reserves to act as if their gold stocks had also been doubled. Thus, the supply of gold was no obstacle to the restoration of the international gold standard with a price-level of about 50 per cent above that prevailing in 1914.

Restoration
of the
gold
standard.

Restoring the gold standard meant in the first instance restoring a fixed relationship between the different currencies and the dollar, for the dollar was the only currency which had remained on the gold standard throughout the war and post-war period.¹ For Great Britain, for example, restoring

¹ With the technical exception of a few months during which exports of gold to the Far East were prohibited.

the gold standard meant restoring a fixed exchange rate between the pound and the dollar instead of the fluctuating rate which had prevailed since the British Government withdrew its control of the foreign exchanges in March 1919. For every country, however, one preliminary question had to be settled—whether the fixed relationship to the dollar which was to be restored should be the old one or some new one. For some countries, such as Switzerland and Sweden, the current exchange rates were so close to the old parity that there was no point in considering any other figure. For many others it was already clear that the process of rising prices and falling currency had gone so far that any return to the pre-war parity was quite out of the question.

But for countries such as Great Britain, the choice was a very real one. At the beginning of 1922 the rate of exchange between the pound and the dollar was about $\$4.25 = \pounds 1$, which represented a depreciation of about $12\frac{1}{2}$ per cent below the pre-war parity of $\$4.86 = \pounds 1$. At the same time British wholesale prices were about 15 per cent higher than American prices. The approximate correspondence of these two percentages is what would be expected on theoretical grounds. A rise in the price-level connotes a fall in the purchasing power of the currency over goods. According to the “purchasing power parity” theory which was expounded in Chapter V, the exchange rates between two currencies should fluctuate in accordance with the relative movements of the purchasing powers of the two currencies. If the pound will buy fewer commodities relatively to the dollar than it did previously, it should exchange for a correspondingly fewer number of dollars. The prevailing exchange rate at the beginning of 1922 appeared, therefore, to value the pound with approximate correctness. Had the pound stood higher, a given number of dollars or of other foreign currencies

The
problem of
the parity.

would have exchanged for a smaller number of pounds. Since the income of the export industries is in foreign currencies but their costs of production are in pounds, such an "over-valuation" of the pound would have hindered their competitive ability and diminished their profits. Conversely, an "under-valuation" of the pound would have stimulated the export industries, but it would have made imports, which have to be paid for in foreign currencies, more expensive. A country's economy can only be free from disturbance arising out of monetary causes if its currency is neither over-valued nor under-valued.

British and
American
prices.

The problem of returning to the gold standard was consequently largely a matter of the relative movements of prices in Great Britain and the United States. To have returned at the exchange rate prevailing in 1922 would have been correct if it could have been assumed that the two price-levels would thenceforth move in a parallel manner. On the other hand there was much to be said for waiting in the expectation that it would eventually be possible to restore the old parity of $\$4.86 = \text{£}1$. The gap between the two price-levels was not large and movements of prices considerably smaller than those which had been witnessed in the preceding eight years would suffice to close it. Restoration of the old parity would be a "return to pre-war"—an ideal which then and later has been very widely held as the touchstone of public policy—and it would leave undisturbed the numerous contracts and investments which had been made on the tacit assumption that the pre-war relationship between the two currencies was permanent. Although a great variety of economic relationships had been entered into on the new basis of prices and currency, many people believed that to fix a new gold value for the pound would in some unexplained way be a breach of faith and would undermine confidence in

London as a centre of international commerce and finance. The policy of waiting for the opportunity of restoring the old parity was accordingly adopted.

The closing of the gap between the dollar and sterling price-levels necessitated a fall in sterling prices relatively to dollar prices. This could be achieved either by a fall in British prices, American prices remaining stable, or by a rise in American prices, British prices remaining stable, or by a combination of the two methods. The following table

	Average of British wholesale price indices (1913 = 100)	Average of American wholesale price indices (1913 = 100).	Excess of British prices over American %	Deprecia- tion of sterling %
1922—1st quarter	155	133	17	11
2nd "	156	141	11	9
3rd "	152	148	3	8
4th "	151	151	0	8
1923—1st "	154	152	2	4
2nd "	154	149	3	5
3rd "	149	144	3	6
4th "	155	146	6	9
1924—1st "	162	146	11	12
2nd "	160	141	13	11
3rd "	163	144	13	9
4th "	165	151	9	6
1925—1st "	166	158	5	2

illustrates what happened in the three ensuing years. The first column gives an average of the three British wholesale price index numbers, and the second column a similar average of four American indices. The third column shows the percentage difference between the two price-levels, and the fourth column the average depreciation of the pound during the quarter.

It will be noticed that the movements of the last two columns are roughly similar. Until the middle of 1923 con-

siderable progress was made in closing the gap. British prices remained steady, while American prices rose slightly; and the rate of exchange moved to within 5 per cent of the old parity. Between the summer of 1923 and the summer of 1924, however, this progress was undone, as there was a sharp rise in British prices but no change in American prices. In the second half of 1924, the process was once more reversed as American prices started to rise. This was continued in the early months of 1925 and sterling rose almost to its parity. The Government decided that the time had come to act, and in the Budget speech in April the Chancellor of the Exchequer announced that free convertibility of the pound into gold would be restored.

The return to the gold standard in 1925 was probably justified at the time.

This decision has been the subject of controversy both at the time and since. The re-establishment of the old parity undoubtedly tended to over-value the pound. It was urged, however, firstly that the over-valuation—the “gap” between the British and American price-levels—was a small one, and secondly, that the rising tendency of American prices, supported by the plentiful supply of credit available in the United States, would in all probability close the gap in a few months without there being any necessity for a fall in British prices. In view of the information available to the authorities at the time and of the great desirability of giving a lead to the incipient movement for financial reconstruction in Europe, the decision was probably justified.

But subsequent events were disappointing.

Unfortunately the expectations upon which it was based were falsified. The American price-level did not continue to rise, but started to fall slowly. Taking the index number of the Bureau of Labour Statistics, the average of the first quarter of 1925 was 150 (1913 = 100); the average for the remainder of 1925 was 149; for the first half of 1926, 145½; for the latter half of 1926, 143; and for 1927, 137. Moreover, the

level of British costs of production, particularly wages, proved very difficult to reduce. The pressure on wages was instrumental in causing the labour troubles of 1926, culminating in the General Strike of May and the long-drawn-out coal dispute. In the event, the average level of wage-rates was not reduced. As a result of these factors the "gap" was never closed. The British price-level continued to fall until the onset of the depression in 1929, but it never outpaced the fall in world prices. Throughout these years, then, the pound sterling was over-valued, and the resulting burden on the export industries was partly responsible for the high level of unemployment which persisted throughout the period.

The restoration of the gold standard in Great Britain was part of a concerted movement of financial reconstruction throughout the world. At the International Financial Conference at Brussels in 1920, and again at the Genoa Conference in 1922, the economic experts had agreed upon a programme of monetary convalescence for Europe. Every country was advised to balance its budget, or at least not to meet the deficit by the creation of fiduciary money or bank credits. When the budget had been balanced the next step was to determine and fix the gold value of the monetary unit, gold being selected because it was considered advisable that all currencies should be based upon a common standard, and gold was the only standard which all countries would agree to adopt. When the gold standard had been restored, its working should be facilitated by the continuous co-operation of central banks, and those countries which did not already have a Central Bank, free from political pressure and conducted solely on lines of prudent finance, should establish one. It was also suggested, with a view to economising gold, firstly that the smaller countries should adopt the gold exchange standard (to be explained shortly) and that

Restoration
of the gold
standard in
Europe.

all central banks should adhere to a convention, whose purpose would be "to centralise and co-ordinate the demand for gold, and so to avoid those wide fluctuations in the purchasing power of gold, which might otherwise result from the simultaneous and competitive efforts of a number of countries to secure metallic reserves".

The ex
neutrals

For the ex-neutral states of Western Europe, whose currencies had never been strongly depreciated, this advice was comparatively easy to follow, and with the exception of Spain—which alone among the European powers never returned to the gold standard after the war—they had all restored the former parities of their currencies by the middle of 1925. Some of them, notably Denmark and Norway, had to undergo extensive deflation of their price-levels in the process.

Continued
inflation
in the ex-
belligerents.

For the ex-belligerents, however, the task was not so easy. The economic structures of these states, whether victors or vanquished, had been shattered by the war and they had been unable to regain financial health. The root of their troubles lay in the fact that they were unable to balance their budgets. The war had left a heavy legacy of exceptional expenditure which the Governments were unable or unwilling to finance out of taxation. Poverty and the lack of confidence in the security of the new political system established after the war reduced the volume of genuine savings available for lending to the national Treasuries. The only resource, therefore, was to borrow from the banks of issue, which printed notes to meet the Governments' deficits. The continuous increase in the currency brought with it continuous increase in the price-level. The rise of prices raised the Governments' expenditure, while the unavoidable delay in raising and collecting taxes prevented the revenue from increasing correspondingly. The growing deficits thus created

were met by still further printing of money, and so the vicious circle revolved. After some time the process became so rapid that its various elements—the increase in the circulation, the rise of prices, and the fall of the foreign exchange value of the currency—became inextricably confused. In the later stages of inflation, when the public came to anticipate its indefinite continuance, the effects of a further increase in the currency were produced before the increase had in fact occurred, and there was actually a shortage of currency, although the printing presses were working night and day to keep up with the demand. In these circumstances it was easy for those in authority to argue that their deficits and the consequent printing of notes were not the cause, but the inevitable effect, of the whole process of inflation.

The remedy for inflation—balanced budgets and stoppage of the printing presses—had been pointed out by the Brussels Conference as early as 1920, but partly as a result of this logical confusion, and partly because of the political unpopularity of higher taxes and lower expenditures, none of the countries affected was prepared to adopt the remedy until its affairs had reached a crisis. In Austria, a country ^{Austria.} which had little economic justification for its existence in the boundaries left to it by the Peace Treaties, the process of inflation continued until prices had risen to a level nearly twenty thousand times that of 1913, and the currency had fallen to little more than one-thousandth of one per cent of its previous parity. The inflation was only arrested by the joint assistance of the Great Powers under the leadership of the League of Nations, which undertook the supervision of Austrian finances. A jointly guaranteed loan was raised and an entirely new currency, the schilling, instituted to take the place of the discredited crown. In Hungary events followed very much the same course.

Germany. The position of Germany was complicated by the burden of Reparation payments and by the cost of the Ruhr struggle which arose out of the Reparations controversy. As a result, the inflation in Germany was carried to almost inconceivable lengths. The wholesale index number, which was 415 in 1919, had risen to 3665 by the beginning of 1922, and to 278,000 a year later. By August 1923 it reached 100,000,000, and by December, when the process culminated, the astronomical figure of 126,000,000,000,000. Stability was eventually achieved by the virtual abandonment of the old currency and the introduction of the Rentenmark, which was to be held at a steady value in gold, secured on the landed property of the country and exchanged for old marks at the fantastic rate of one billion (one million million) marks for one Rentenmark. At the same time measures were taken to balance the budget. Later the Reichsmark was introduced as a gold standard currency.

France. These were the extreme cases of depreciation. In France,
Belgium. Belgium, and Italy inflation never proceeded to these lengths. Nevertheless it was not until the franc had fallen to a tenth of its former value that the political resolution was found to put a stop to budget deficits and borrowing from the Bank of France. The franc subsequently rallied, and it finally returned to the gold standard at about one-fifth of the pre-war parity. The table on the opposite page shows the rates at which the different currencies were eventually revalued.

By the end of 1926 the gold standard had been restored in most of the principal countries of the world. In some countries, such as France, the formal legal steps were not taken until a year or two later, but *de facto* stability of the exchange rates was general from 1927 onwards. In the ensuing years the gold standard was adopted by the vast majority of countries, some of which had not adhered to

it before the war. The establishment of Central Banks and the adoption of gold convertibility became the general rule, until in the middle of 1929 only a handful of countries, of which Spain, China, and Mexico were the chief, still had fluctuating currencies.

As compared with the pre-war period, therefore, the gold

POST-WAR STABILISATION OF CURRENCIES

Country.	Year of restoration of gold standard. ¹	New parity as percentage of pre-war
Denmark . . .	1926	100
Netherlands . . .	1924	100
Sweden . . .	1922	100
Switzerland . . .	1924	100
United Kingdom . . .	1925	100
Italy . . .	1927	27·3
France . . .	1928	20·3
Czechoslovakia . . .	1929	14·6
Belgium . . .	1926	14·5
Finland . . .	1925	13·0
Yugoslavia . . .	1931	9·1
Greece . . .	1928	6·7
Portugal . . .	1931	4·1
Bulgaria . . .	1928	3·7
Roumania . . .	1929	3·1
Hungary . . .	1925	0·0069
Austria . . .	1923	0·00007
Poland . . .	1927	0·000026
Germany . . .	1924	0·0000000001

¹ The year given is that of the legal return to the gold standard. In some cases the currency had been stable in terms of gold for some time previously.

standard extended over a wider area and supported a price-level roughly 50 per cent higher. This was accomplished by a considerable economy of gold. One method of economy—the concentration of gold in the reserves of the Central Banks in place of its dissipation in hand-to-hand circulation—has already been described, and it was perpetuated in many countries by the provision that gold could no longer be

Economies
in gold—

The gold
bullion
standard.

obtained from the Central Banks in small amounts in coin, but only in large amounts in bullion. In Great Britain, for example, the minimum was about 400 ounces. This variation of the pre-war gold standard is known as the "gold bullion standard". Another device was developed for the poorer and smaller countries. This was the so-called "gold exchange standard". These countries held the reserves for their currencies not in actual gold but in claims on other currencies (chiefly the pound and the dollar), which were themselves convertible into gold. The Central Bank of Estonia, for example, was required to hold a reserve amounting to 40 per cent of its notes and other demand liabilities. This reserve, however, could be held either in gold or in the form of deposits in centres where gold was obtainable on demand. Similarly, the Estonian currency was not made convertible by law into gold, but into sterling or dollars. This system had two advantages. In the first place, it enabled a considerable economy of gold to be effected, since the gold reserve of the Bank of England, for example, did double duty, serving first as a reserve for sterling, and, through sterling, also for those countries which regarded their deposits in London as part of their currency reserve. Secondly, these smaller countries were enabled to keep their reserves in deposits on which interest was paid rather than in gold which could produce no income. The system had, however, the grave disadvantage that it involved the existence in the main monetary centres of large amounts of deposits which were liable to sudden withdrawal.

The gold
exchange
standard.

By the use of these methods the available supply of gold was economised. Had each country been content to keep in gold the amounts specified by its currency legislation with a reasonable margin for contingencies, there was undoubtedly enough gold to support the prevailing price-level and to

allow for a gradual general expansion of credit to keep pace with the advancing productivity of industry.

* Unfortunately, however, the restored gold standard did not work smoothly or successfully. In the decades before the war the operation of the gold standard had not only maintained stability of the exchange rates; it had also assured a rough equilibrium of prices between the different countries. If prices in any country were tending to rise relatively to those of the rest of the world, goods would flow in and gold would flow out; a restriction of credit would automatically follow, prices and costs would be adjusted downward and the equilibrium of commerce would be restored. Conversely, if a country's prices were falling relatively to those of the rest of the world, goods would flow out and gold would be imported, credit would be expanded, prices would rise and trading conditions be restored to equilibrium. This is, of course, an over-simplified account of the effects of gold movements in the pre-war world. But it is true at least to the extent that movements of gold were never either large or long-continued, and that the conditions of disequilibrium between the different markets which had given rise to them were adjusted in a way which, if not entirely automatic, was at least not consciously manipulated by the currency authorities.

In the post-war world, however, these adjustments were not successfully made. In part this failure of the gold standard was due to the greater magnitude of the task confronting it. Disequilibrium between two countries, when it occurred before the war, was of quite minor proportions and could be adjusted by small alterations of discount rates. In the post-war world, however, the disequilibria were much larger. Some currencies, such as the pound, had returned to the gold standard at rates of exchange which distinctly overvalued them. Between 1925 and 1929 prices and costs of

Reasons
for the
breakdown
of the
post-war
gold
standard.

(i) Magni-
tude of the
economic
dis-
equilibria.

production in England relative to those in the rest of the world were too high, not temporarily and in minor degree, but chronically and to the extent of five or ten per cent. The position of London was consequently weak throughout the period and there was a constant tendency to an outflow of gold. Other currencies, notably the French franc, were stabilised at too low a level, and the resulting strength of Paris, with its constant tendency to attract gold, was no less disturbing. These maladjustments were probably too large to be reconciled by purely currency arrangements.

(ii) Obstruction of trade by economic nationalism.

This is not, however, the full explanation. Even those adjustments which the gold standard might have produced if allowed to function were impeded by the policies of the different Governments. The process of adjustment is brought about by movement of goods and the rendering of services in international trade, so that those countries which need to sell more goods in order to balance their accounts and arrest an outflow of gold can by slight downward adjustments of prices increase the total value of their exports. Tariffs are an impediment to this process, but provided that they are not so high as to be entirely unscaleable, and provided further that they are not frequently changed, the course of international trade can adjust itself to them. This was broadly the position before the war. After the war, on the other hand, there was an orgy of economic nationalism. This was brought about partly by a great increase of tariffs, but still more by the much more drastic method of prohibitions of imports and restrictions of many kinds; and these barriers were altered almost from day to day. These new and constantly changing barriers to trade were deliberately intended, not to assist trade to return to its old and well-established channels, but to create a new economic structure, to establish industries within frontiers where they had not existed

before, or to stimulate food or other supplies in countries which had hitherto imported them. In some cases they were imposed as measures of economic warfare. They thus created and aggravated disequilibrium in the payments due to one another by the countries of the world, and made it impossible to restore the balance by the fine adjustments of the gold standard system working through the normal processes of trade.

Another source of strain arose out of the payment of (iii) Burden of Reparations and War Debts. Reparations were purely and simply an indemnity imposed upon Germany by the Allies, while the War Debts, having been incurred for purposes of destruction, were represented by no productive asset whatsoever in the countries which owed them and were thus an unrelieved burden on the finances and economies of the debtor states—except to the extent that they were offset by the receipt of Reparations. These payments arising out of the war meant that large sums had to be transferred from one currency to another without regard to the extent or direction of commerce between the countries concerned or to the scarcity or abundance of credit. The necessity of paying Reparations contributed to the collapse of the German currency in 1923 and prevented Germany from building up a really secure financial position after the stabilisation in 1924. The receipt of Reparations and War Debts by the two largest creditors, France and the United States, finally accelerated the flow of gold to these two countries. The payment of both Reparations and War Debts eventually ceased, but not before they had played their part in wrecking the post-war gold standard. (iv) Failure to allow gold movements to produce their normal effects.

These impediments would have made impossible the task of any international currency system, even if it had been run with infinite skill and wisdom. But the post-war gold standard was not allowed to produce its monetary effects as it did effects.

before the war When there is a tendency for a country to import gold, that is a sign that the total payments due to that country from other countries, whether for exports sold, for interest on past debts, for Reparation payments, or for any other reason, exceed the payments due *by* that country, *to* foreign countries: the country is, in the technical phrase, a creditor on current account. The gold imported represents the net excess of the one total over the other. When a country is in this position—as first the United States and later France were in the period under discussion—it is faced with three alternative courses of action. The first is to continue to receive the balance in the form of gold. But if the balances are large this will soon exhaust the reserves of the countries losing gold and force them off the gold standard. The second possibility is to lend the net balance back to the countries owing it, so that they avoid having to lose gold at the cost of increasing their external debts. This alternative is clearly only a palliative, as the debts will have to be paid at some time in the future, while a continuance of the process of lending will lead to a piling up of interest charges. The third possibility before the creditor countries is to allow within their territory such an expansion of credit and rise of prices as will stimulate imports of goods from the other countries and restrict exports of goods to them—thus wiping out the net balance of payments receivable which occasioned the flow of gold Of the three alternatives only the last is a permanent adjustment of the situation, and it is of the essence of the gold standard that countries importing gold should recognise the obligation resting upon them to increase their payments to the rest of the world and diminish the payments due to them by the rest of the world—in other words, to increase their imports relatively to their exports and give their debtors a chance to pay their debts in goods and

services. A similar obligation rests on the debtor country so to act that its price-level tends to fall—thus encouraging exports and discouraging imports.

In the post-war world this obligation was never-recognised. The two great creditor nations were the United States and France. The United States had been enabled during the war to repay her debts to Europe, to make further large loans to the European belligerents, thus becoming a creditor instead of a debtor, and also greatly to improve her competitive position in the world's export markets. France was a large net receiver of Reparations; in addition, by stabilising the franc at a level which under-valued it, she had stimulated her exports and restricted her imports, thus still further increasing her net balance of payments receivable. As the debtor countries either did not or could not make the drastic changes in their internal price structures that would have been required to produce a sufficient surplus of exports to the creditor countries, the world's international trade was, in fact, never adjusted to make possible the payment in goods of the debts created by the war or incurred after it.

There were consequently many causes of strain and disequilibrium in the system set up by the restoration of the gold standard. For a few years, however, though the underlying defects were not being cured, their effects were for the time being obscured. Both France and America were temporarily applying the second alternative course open to creditor nations: that is to say they were making loans to the debtor countries on a large scale. The United States was adopting this policy consciously and almost deliberately by making commercial loans to German borrowers and to South America. France, in the interim period between the *de facto* stabilisation of the franc in the middle of 1926 and the legal return to the gold standard two years later, was accomplish-

These defects were obscured for a time

ing the same end by the less deliberate means of allowing her short-term capital to accumulate in foreign centres. Thus, for two years, the post-war gold standard appeared to be functioning normally. There were no large movements of gold, credit was able to expand throughout the world, production and prosperity increased. These two years, from the middle of 1926 to the middle of 1928, were the nearest approach to stability of which the post-war world proved itself capable. But the stability was not an indication of an underlying balance of economic forces. On the contrary, there were many fundamental factors of profound disequilibrium, and the surface stability was maintained only by a number of monetary expedients of a temporary nature.

Conditions
in Great
Britain.

Monetary
stringency.

Throughout this period, conditions in Great Britain were dominated by the development of the international situation and by Great Britain's part in it. In two main ways Great Britain was put at a disadvantage by the post-war complex of events. In the first place the fact that the return to the gold standard had been accomplished at a rate which over-valued the pound made it necessary for the monetary authorities to restrict credit, or at least to prevent any expansion. According to orthodox gold standard theory this policy would, at the cost of a temporary industrial depression, bring about such a downward readjustment of British prices and costs as would put our export industries once more in a competitive position. In the event, however, British prices and wages proved very resistant to downward pressure. Accordingly, the policy of relatively dear money had to be continued, not merely out of stubbornness but also from the necessity of retaining the deposits placed in London by foreign nations. The average of Bank Rate for the five years 1925-29 was £4 : 16 : 10 per cent compared with £3 : 15 : 4 in the five years 1909-13. Dear money restricted initiative in

the domestic industries without succeeding in placing the export industries in a competitive position. In the second place, the world-wide prevalence of economic nationalism naturally damaged the interests of the foremost exporting nation of the world. The export industries did, indeed, reduce their wage-rates and such costs as were within their direct control, but the continued high cost of living prevented any large wage-reductions, while the rigidity of costs and prices in the "sheltered" industries (*i.e.* those not exposed to foreign competition) kept at a high level the cost to the "unsheltered" export trades of such services as transport and housing. The condition of Great Britain in these years was one of deep depression in the "unsheltered" industries and of very restricted prosperity in the "sheltered" trades.

Disparity between "sheltered" and "unsheltered" industries.

This disparity can be illustrated by the following table, which shows the percentage of insured workpeople unemployed in various industries. The figures given are the average of those for June 1925 and June 1929, that is, immediately after the restoration of the gold standard and immediately before the onset of the world depression:

UNEMPLOYMENT IN DIFFERENT INDUSTRIES, 1925-29

	per cent		per cent
Shipbuilding . . .	27.7	Hotels, etc. . . .	7.7
Iron and Steel Rolling		Hosiery	7.5
Mills, etc. . . .	22.0	Chemicals	7.3
Coal-mining	22.0	Drink industries . .	6.2
Shipping	17.1	Distributive trades .	5.9
Public Works Contracting	16.8	Furniture making . .	5.7
Woollen and Worsted .	16.8	Gas, Water, and Elec-	
Pig-iron (blast furnaces)	15.0	tricity supply . .	5.7
Jute	14.6	Tobacco	5.4
Boots and Shoes . . .	11.8	Hats and Caps . . .	5.1
Cotton	11.1	Electrical Engineering .	5.0
General Engineering .	10.5	Tailoring	4.8
Building	8.0	Printing, Publishing,	
Motor Vehicles . . .	7.8	and Bookbinding .	4.4
		Laundries, etc. . . .	4.3

Of the industries in the first column nearly all are predominantly export industries, the chief exceptions being Public Works Contracting and Building. The figure for Motor Vehicles is an average of two figures which diverge quite widely; unemployment in this industry in June 1929 was only 6.1 per cent. The industries in the second column are those in which unemployment throughout the period was little, if at all, greater than the irreducible minimum caused by the movement of labour. It will be noticed that in virtually every case these industries cater for the consumption of the home population.

Unemploy-
ment.

The uneven incidence of unemployment must be borne in mind in reading the next table, which shows the unemployment percentage among insured persons as a whole throughout the period:

UNEMPLOYMENT AMONG INSURED PERSONS, UNITED KINGDOM,
1922-29

	per cent		per cent
1922—1st quarter	16.9	1926—1st quarter	10.4
2nd "	14.7	2nd "	12.7
3rd "	12.9	3rd "	14.0
4th "	12.8	4th "	13.0
1923—1st "	12.5	1927—1st "	10.9
2nd "	11.3	2nd "	9.0
3rd "	11.7	3rd "	9.3
4th "	11.2	4th "	9.7
1924—1st "	10.8	1928—1st "	10.2
2nd "	9.5	2nd "	10.0
3rd "	10.3	3rd "	11.5
4th "	10.8	4th "	11.6
1925—1st "	11.2	1929—1st "	11.5
2nd "	11.2	2nd "	9.7
3rd "	11.8	3rd "	9.8
4th "	10.9	4th "	10.7

This table gives a fairly accurate picture of the industrial fortunes of these eight years. At the beginning of 1922 the

effects of the depression of the previous year were still visible, but the improvement was continuous until the middle of 1924. Thereafter there was some worsening, but again improvement. In 1926, however, the General Strike, which lasted for a few days in May, and the coal dispute, which dragged on until the autumn, caused some decline in activity. The men actually on strike were not included in the unemployment figures, but the stoppage of coal supplies caused considerable unemployment in the heavy trades. During 1927 there was a certain amount of making up for lost time, but unemployment rose again in 1928. Finally in 1929 there was a burst of activity in the middle of the year. At no time, however, did the general unemployment percentage fall below 9 per cent. In view of the fact, however, that several of the largest industries of the country were showing unemployment percentages of over 20 per cent throughout the period, an average figure of 9 per cent connotes a reasonable degree of activity except in those industries. It has also to be remembered that throughout this period there was a steady increase in the adult population. The expansion of employment during these years was sufficient to absorb this increase, and in addition to make some impression on the large army of the unemployed.

In studying the level of wages during this period, a caution Wage rates. similar to that expressed in regard to the unemployment figures is necessary. The unequal incidence of unemployment on the exporting or "unsheltered" industries and the domestic or "sheltered" industries is paralleled by a disparity of wage rates. The loss of trade and the severer competitive conditions in the export trades made it necessary for the employers in these trades to ask for larger reductions in wages during 1921 and 1922, and harder for the employees to resist these demands, than was the case in the "sheltered" industries.

As a result, when wages settled down to their post-war levels, the increases compared with pre-war rates were much smaller in the export industries than elsewhere. This is illustrated by the following table, which is taken from the *Survey of Industrial Relations* published by the (Balfour) Committee on Industry and Trade, which was appointed in 1924 and reported in 1929:

INCREASES OF WAGE RATES, 1914 TO JUNE 1925. (Average Increase in Wage Rates = about 75 per cent) (Cost of Living Increase = 73 per cent)	
Exporting Group of Industries	Certain Industries of the "Sheltered" Type
<i>(A) Increases substantially above the general average</i>	
Boot and Shoe manufacture	Printing and Bookbinding
Chemical manufacture	Railway service
(labourers)	Baking
Dock labour	Road transport
Woollen and Worsted	Tramway service
	Local Authority (labourers)
	Building
<i>(B) Increases not substantially different from the general average</i>	
Engineering (labourers)	
Shipbuilding (labourers)	
Cotton	
<i>(C) Increases substantially below the general average</i>	
Pig-iron manufacture	
Iron and Steel manufacture	
Engineering (skilled men)	
Shipbuilding (skilled men)	
Coal-mining	
Iron mining	

There was an almost equally great disparity between the increases secured by skilled and unskilled men. The underlying cause of this may have been the gradual growth of mechanisation in industry and the consequent lessening of

the premium on skill. However that may be, the occasion of the change was that wage increases during the war were usually granted in the form of a uniform number of shillings added to the wages of each grade of labour, and not in the form of uniform percentage additions. This represented, of course, a higher proportionate gain for the lowest-paid workers, a gain which they managed to retain throughout the post-war period. This was true of both "sheltered" and "unsheltered" industries. Thus in shipbuilding, the most depressed of all industries, labourers' wages in June 1925 were 68 per cent higher than in August 1914, while shipwrights' wages were only 35 per cent higher. In building, labourers' wages were 106 per cent higher, while bricklayers' wages were only 81 per cent higher. On the railways (where pre-war wage rates had been lower than the average) passenger porters secured an increase of between 145 and 161 per cent, while engine-drivers' wages were increased by between 85 per cent and 95 per cent.

In view of these facts any inferences drawn from an index number of wages embracing skilled and unskilled grades in "sheltered" and "unsheltered" industries may be misleading unless the necessary qualifications are borne in mind. The table on the next page, which shows Professor Bowley's index of wages, together with the Ministry of Labour index of the cost of living, should therefore be read with caution.

The index of wage rates shows surprisingly little change after it reached its post-war level at the beginning of 1923. From the beginning of 1927 there was a slow falling tendency, but the reduction was far less rapid than that in the cost of living. It will further be noticed that the wage index is consistently from 20 to 30 points above the cost of living index, although other calculations (for example, that given at the head of the table on page 180) do not support this

conclusion. After making allowances for the necessarily imperfect nature of both wage and cost-of-living indices, it is probable that the *average* of real wages was higher after the war than before. Some of the improvement in real wages is not reflected in the cost of living index, for there was a rela-

WAGES AND THE COST OF LIVING, 1922-29
(July 1914 = 100)

	Wages.	Cost of Living.		Wages.	Cost of Living.
1922—			1926—		
1st quarter	237	189	1st quarter	196	173
2nd „	222	181	2nd „	196	168
3rd „	208	181	3rd „	196	171
4th „	196	179	4th „	196½	177
1923—			1927—		
1st quarter	195	177	1st quarter	197	173
2nd „	195	171	2nd „	196½	164
3rd „	192	171	3rd „	196	165
4th „	191	176	4th „	196	168
1924—			1928—		
1st quarter	192	178	1st quarter	195	166
2nd „	195	171	2nd „	194½	164
3rd „	198	171	3rd „	194	165
4th „	198	179	4th „	194	167
1925—			1929—		
1st quarter	196½	179	1st quarter	194	166
2nd „	196½	173	2nd „	194	161
3rd „	196	173	3rd „	193½	163
4th „	196	176	4th „	192½	166

tive cheapening of many things which working people consume but which do not appear in the index, for example, entertainment and transport. Applying to this conclusion the disparities noted above, we can say that the unskilled worker in a “sheltered” industry was definitely better off as a result of the war and post-war changes. Skilled workers in “sheltered” industries were also better off, though the improvement was less marked. Labourers in the export industries

were, on the whole, in about the same position as in 1914, though some were better off and some worse off, according to their particular trade. Skilled "unsheltered" workers were almost certainly worse off: shipwrights' wages, for instance, had been increased by 35 per cent only in June 1925, which, compared with an increase in the cost of living of 72 per cent, is equivalent to a reduction in real income of $21\frac{1}{2}$ per cent

Furthermore, in attempting to assess the changes in the ^{The} standard of living of the working-class as a whole, an additional allowance must be made for the fact that unemployment was much heavier in the post-war period than in the first fourteen years of the century, or indeed in any previous period. An attempt is made in Appendix E to estimate the importance of this factor, making allowance both for the incidence of unemployment and for unemployment insurance payments, and the conclusion is reached that in this period the average standard of living was slightly higher than in 1914. This conclusion, however, is also subject to the disabilities attaching to any general average, especially when it is considered that those industries in which wage rates were lowest were also those in which the incidence of unemployment was highest. This widens the disparity already noticed, and makes it impossible to express any opinion on changes in the standard of living in general. All that can be said is that in most areas, occupations, and grades of labour the standard of living was considerably higher than before the war, that in other areas, occupations, and grades there was a definite decline in comfort, and that in some of the regions which had specialised on activities associated with export (including shipbuilding) there was a deplorable sinking into poverty and decay.

One element in the standard of living, namely, the amount ^{Hours of} of leisure at the disposal of the working population, does not ^{Work.}

lend itself to statistical computation. Generally speaking, the reductions of working hours carried through in 1919 were maintained throughout the subsequent period, as is shown by the following table.—

CHANGES IN RECOGNISED HOURS OF LABOUR

Year	Number of Workers affected	Aggregate Net Change in Hours per Week
1922	318,700	— 93,000
1923	334,600	+ 108,750
1924	29,300	+ 12,500
1925	5,225	— 11,750
1926	934,540	+ 3,984,850
1927	70,400	+ 59,000
1928	3,400	— 200
1929	5,100	+ 8,750

The large increase in hours in 1926 is almost entirely accounted for by the result of the long dispute in the coal-mining industry. Apart from this one large change, none of the figures of the table represents more than 6 per cent of the workers affected, or one-quarter of one per cent of the aggregate change in hours recorded, in 1919.

The next table analyses the changes in the prices of individual articles during these years. The months of December 1922 and December 1928 have been chosen for the comparison, as it is difficult to decide at what time in 1922 the previous decline of prices ended and at what time in 1929 the ensuing depression started. This comparison also has the merit of eliminating any purely seasonal fluctuations.

Two of the severest declines recorded in this table, those of sugar and of rubber, can be directly ascribed to the collapse of attempts on the part of raw material producers artificially to maintain prices at an excessive level. The price of sugar in December 1922 was more than remunerative to the pro-

ducers; demand was reviving after the slump of 1921, and the European beet sugar industry had not yet regained its pre-war production. In the following years production was

ANALYSIS OF PRICE MOVEMENTS, DECEMBER 1922 TO
DECEMBER 1928

(Average fall—9·7 per cent)

Articles which fell more than the Average		Articles which fell about the Average		Articles which rose in price	
	per cent		per cent		per cent
Refined sugar .	-51	Cement .	-17	Rice .	0
Raw sugar .	-46	Frozen mutton .	-17	Tobacco .	0
Silk .	-42	Cheese .	-17	Fuel oil .	0
Rubber .	-39	Cotton cloth .	-16	Flax .	+ 2
Gas coal .	-34	Bacon .	-16	English timber .	+ 4
Steam coal .	-31	Australian wool .	-15	Barley .	+ 5
Raw cotton .	-31	Flour .	-14	Iron bars .	+ 7
House coal .	-29	Jute .	-12	Hemp .	+ 9
Pig-iron .	-27	Chilled beef .	-12	Maize .	+ 12
Cotton yarn .	-27	English beef .	-11	Copper .	+ 15
Linseed oil .	-26	Tin plates .	-10	Tin .	+ 24
Wool tops .	-25	Coco-nut oil .	- 9	Leather .	+ 24
Spelter .	-23	Butter .	- 7	Potatoes .	+ 33
Petrol .	-22	Oats .	- 6	Coffee .	+ 38
Scandinavian timber .	-21	Steel rails .	- 6		
Petroleum .	-19	Hides .	- 6		
Lead .	-19	Soda crystals .	- 5		
		Tallow .	- 4		
		Cocoa .	- 4		
		English wheat .	- 2		
		Canadian wheat .	- 1		

increased both in Cuba and in Europe as well as in other countries, and the attempts of the Cuban Government to restrict sales and hold the price up merely encouraged the growth of production elsewhere. The world output, which was 17,600,000 tons in 1921-22, increased to 25,300,000 tons in 1927-28. The price, which had been 3·90 cents per pound

(in New York) in December 1922, rose as high as 6.2 cents in the following May, but from that time onward the increasing production forced the price gradually lower, and after the breakdown of Cuban restriction the fall became precipitous.

Rubber.

The story of rubber is an even clearer example of the harmful effects of such restriction schemes. It has been remarked in the previous chapter that the price of rubber did not rise during the war period owing to the rapid expansion of production, which increased from 118,000 tons in 1913 to 398,000 tons in 1919. This did not, however, save it from sharing in the fall of prices in 1920-21. At this period nearly three-quarters of the world's production of rubber was concentrated in the British Empire, mainly in Malaya, and the British Government, on the advice of the Stevenson Committee and at the request of the rubber growers, instituted a restriction of exports in the hope of raising and maintaining prices. Their hope was at first realised. The plan was adopted in October 1922, and the price, which had been 7d. per pound in September, jumped to 1s. 2d. in December, which is the earlier month of the two compared in the table. Not content with this, however, exports were still further restricted, until in the winter of 1924-25 the growers were permitted to export only 50 per cent of their production. As a result, the price rose to 4s. 7d. in December 1925. This excessive price naturally stimulated production in areas beyond the control of the Stevenson Plan, particularly in the Dutch East Indies, and it further encouraged rubber users to seek substitutes and to fill their requirements by reclaiming used rubber. This increase in supply and decrease in demand lowered the price; the British growers, by continuing restriction, merely diminished their own share in the market without enhancing the price they received. By January 1928 the price had fallen to 1s. 6d. and in April 1928 the restriction scheme was aban-

doned. In December, which is the closing date of our table, the price was less than 9d. Production had increased between 1922 and 1928 by 64 per cent, while the share of the British Empire in the total production had fallen from 69 per cent in 1922 to 59 per cent in 1928.

At the other end of the table there is an example of another Coffee. restriction scheme in mid-course, in the case of coffee. From 1921 onwards the Brazilian Government attempted to "defend" the price of coffee by restricting exports. By the end of 1928 it was still having a modified degree of success, enough at least to show a considerable increase in price. The scheme, had, however, been assisted by a short crop in 1928, and the increase in production both in Brazil and elsewhere, coinciding with the onset of the world depression, forced the abandonment of the scheme and brought about a rapid fall of the price in October 1929.

These three commodities are of outstanding interest as reflecting the results of direct attempts to control price. Other large changes are due to special circumstances or to the change in general conditions of trade and economic activity. The fall in the price of silk, for example, was largely Silk. due to improved methods of production in Japan and to the development of artificial silk, while the rise in the price of potatoes was due to a short crop in 1928. Cotton fell heavily Potatoes. owing chiefly to rapidly increasing crops in America following Cotton the success of attempts to fight the boll weevil pest. The world price of coal has been affected by the competition of Coal oil and water power and the opening up of new coal-fields; this situation has been met in the British coal industry—after a lengthy struggle—by a reduction of costs, though not on a sufficient scale to enable the British mining industry entirely to recapture its predominance in the export trade. Petrol and petroleum prices fell because of the rapid expan- Petrol.

Tin.
Copper.

sion of the oil industry and in spite of the almost equally rapid expansion in consumption. The relative strength of tin and copper was due in part to the efforts made by the producing interests to regulate sales. In the case of each of the four non-ferrous metals (copper, tin, lead, and spelter) prices rose for some time after 1922 and reached a maximum in the years 1924 to 1927. Thereafter, however, they all declined, owing in part to over-production and in part to lower costs of production consequent upon technical improvements.

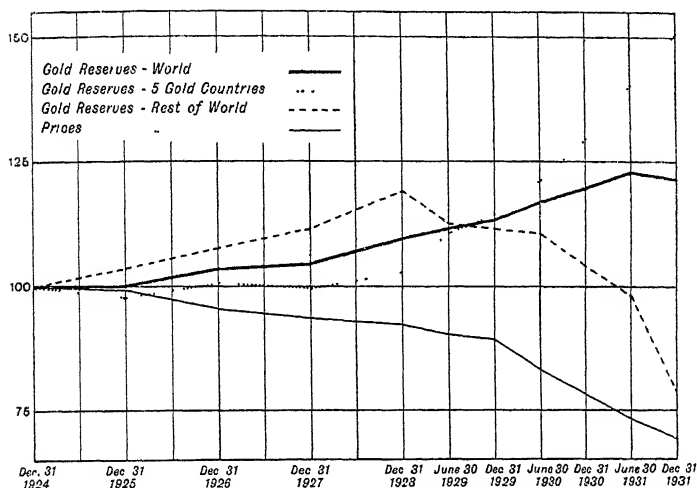
2. 1929-1932. PRICES FALLING

The seeds of disequilibrium which lay within the superficial success of the restored gold standard have already been described. The growth of tariffs prevented commercial readjustments from coming about. Reparations and War Debts were an element in international financial transfers which was impervious to all influences of policy. Neither creditor nor debtor nations were willing or able to make the readjustments called for by the circumstances, but preferred to cover up the disequilibria by lending and borrowing.

From 1928
the under-
lying dis-
equilibria
were
uncovered.

Beginning in 1928 a number of causes brought an end to these temporary expedients. The gathering momentum of a great Stock Exchange boom in New York made foreign loans unattractive to the American investor. Long-term lending by the United States accordingly ceased, and although the American banks continued to make short-term loans, notably to Germany, the high rates paid for call money by the speculators in New York began to reverse the stream of lending by attracting funds from foreign countries. In the summer of 1928 the franc was legally stabilised, and from that time France not only ceased to lend to foreign countries by increasing her deposits in foreign centres but even began to

recall the deposits already lent. Thus America ceased to lend any further capital, while France was demanding the repayment of capital previously lent. The result was that the debtor nations (by which is meant, in this connection, those nations which were on balance buying more from the outside world than they were selling) were unable to meet their net balance of debts payable by fresh borrowing and had to export gold. This fact is very clearly shown in the accom-



panying chart, which is taken from the late Mr. Joseph Kitchin's memorandum on *The World's Gold Reserves and Commodity Prices*.¹ The chart shows the fluctuations of the gold reserves of the five countries in a strong "creditor" position (United States, France, Switzerland, Holland, and Belgium) and of the rest of the world, both totals being expressed as a percentage of the end of 1924. It will be seen

Effects on prices of the maldistribution of gold.

¹ Published as a Supplement to *The Economist*, January 21, 1933.

that until 1928 the gold reserves of the majority of countries showed a considerable increase. From 1928, although the gold stock of the world as a whole continued to increase, the reserves of all but the five "gold countries" began to decline rapidly. As a result credit contraction became necessary in these countries. Prices fell, and even those countries which were importing gold did not succeed in escaping the decline. A line has been added in the chart to show the course of prices—an average of the British and American wholesale and cost-of-living indices has been used—and it will be noticed that its movements are roughly parallel to those of the reserves of the majority of countries.

Contraction of credit was not the only cause of the fall of prices which soon set in. The raw-material producing countries of the world had been suffering ever since the war from the attempt of the countries which formerly imported agricultural products to produce more of their requirements at home. Accordingly, raw-material prices had been weak for some years. In some products, notably sugar, coffee, and rubber, the producers' organisations attempted by controlling sales to keep the price up. Unfortunately they failed to regulate the volume of production, and as the prices they maintained held out the prospect of considerable profits to producers, production increased instead of diminishing and unsold stocks piled up. This is a simple description of the common thread running through the complicated details of these projects. Every one of them broke down between 1927 and 1929. The increased production flooded on to the restricted markets and prices broke. These schemes provide another example of the fact, which the monetary policy of the period further illustrates, that the adoption of temporary expedients to postpone necessary adjustments cannot permanently avoid the necessity, while the postponement may

only increase the extent, of the ultimate adjustments.

The depression which in these various ways was brewing came to a head in 1929. A falling tendency of commodity prices is noticeable as early as the spring of that year. In the summer, as the result of the rush of funds to America to participate in the Stock Exchange boom and to take advantage of the very high rates of interest prevailing there, credit was further restricted in Great Britain and Bank Rate reached a high point of $6\frac{1}{2}$ per cent. In the autumn the bubble of the Stock Exchange boom in New York burst, and the ensuing crash of prices contributed the psychological effects of crisis to what was already the ebbing tide of American prosperity.

This is not the place to describe the course of the depression. Throughout 1930 prices fell and unemployment rose in every major country of the world, except France, which was still enjoying the effects of the undervaluation of the franc, and China, which, being on a silver standard, did not share in the fall of gold prices. Most countries strove, by increasing their protective tariffs, to save their own industries from the universal decline, but this action, when combined with similar measures by nearly every other country, served only to restrict still further the exports of all and left each worse off than before.

There were some signs of approaching stability in the early months of 1931. The decline of prices and production slackened, while there was a pause in the increase of unemployment. Any recovery that might have followed was, however, overwhelmed by the financial crisis which developed in the summer of 1931. Germany had been particularly adversely affected by the necessity of continuing Reparation payments, whose amount was unaffected by the falling level of prices or by the shrinking volume of the international

traffic in goods by which alone such debts must in the long run be paid. Together with the other Central European countries Germany had also in previous years borrowed large sums in the form of short-term funds from foreign countries. These loans had now stopped and there had already been some tendency to refuse to renew them. In May the outbreak of banking trouble in Austria precipitated a mass withdrawal of these funds from Austria, Hungary, and Germany. In June President Hoover proposed a suspension of Reparation and War Debt payments, but the action came too late. In July the German banks were closed and severe restrictions were placed upon the withdrawal of foreign funds from the country.

Suspension
of the gold
standard
in Great
Britain,

Great Britain was known to have invested considerable sums in Germany and to owe even larger sums, repayable on demand, to other countries. Suspicion therefore turned upon London, and in spite of large borrowings by the Bank of England and the Treasury from Paris and New York, the gold standard had to be suspended in September. Great Britain's action was followed by most of the British Dominions, the Scandinavian countries, Japan, and a number of others, while most of the Central and East European states saved their currencies from depreciation only by imposing restrictions upon payments to foreign countries.

The suspension of the gold standard released the countries whose currencies depreciated from any further deflation of prices, although it was some time before any of them showed positive signs of recovery. In the countries remaining on the gold standard, however, the competition of countries with depreciated currencies resulted in a still further diminution of exports. In these countries, the fall of prices and production continued unabated. The process was perhaps most intense in the United States. The American banking system,

which has several inherent weaknesses, began to break under the strain. Bank failures induced the hoarding of currency, until in the first days of March 1933 a sudden panic forced the closing of every bank in the country. In the emergency measures taken by the United States Government after this event, the United States suspended the gold standard and the dollar depreciated. and in the
United
States.

The countries left on the gold standard by these defections attempted to safeguard their currencies and their commerce by piling on tariffs and by enacting exchange restrictions which were even more successful in choking trade. These measures excited reprisals of the same kind from the countries with depreciated currencies, including even Great Britain, which for nearly a century had preached and practised Free Trade. As a result, the value of the world's trade in 1933 had sunk to a third of the figure of 1929.

In this extended crisis the post-war gold standard was shattered. The depreciation of first the pound and then the dollar imposed severe losses upon the countries adopting the gold exchange standard and plunged that standard into a cloud of disrepute. By 1934 only six countries remained upon the gold standard, while a handful more maintained the value of their currencies only at the cost of progressively restricting all financial intercourse with the outside world. Adherence to the gold standard, whether in fact or in form, seemed to bring with it only the continuance of deflation and depression, while in most of the countries that had suspended the gold standard modest recovery was appearing.

In these circumstances there is little to be gained by speculating upon the nature of any future international currency standard, if indeed there is to be one. The events of the past eight years are in part a cyclical depression of the kind with which the world is familiar and this book is not

primarily concerned. But they are also in part the effects of the breakdown of an international system which was never in the post-war world based upon any underlying harmony in either the commercial or the financial sphere.

Course of events in Great Britain. It remains to indicate, in a manner similar to that employed in previous chapters, the effects of this economic cataclysm upon prices, wages, and the standard of living in Great Britain—with the preliminary *caveat* that the circumstances in the middle of 1932, which is taken as the closing date of this period, were in no way normal.

Reasons for comparative mildness of the depression in Great Britain.

For a number of reasons, the depression was less severe in Great Britain than elsewhere. We had not enjoyed the measure of prosperity which had visited some other countries, with the results that we had not so far to fall to adversity, and that we had not indulged in those unsound and speculative expansions which in other countries, notably the United States, contributed so powerfully to the accumulating disorder. In the second place, the British banking system met all the internal strains that were put upon it, and Great Britain escaped having the effects of monetary distrust added to the more general causes of depression. The pound was one of the first currencies to leave the gold standard, and we were therefore released at a relatively early stage from the vicious circle of deflation in which the gold standard was caught. Throughout the worst period we continued to import most of our foodstuffs and raw materials without restriction, and consequently reaped the benefit of the extremely low prices prevailing upon the world market. In studying the following facts, therefore, it should be borne in mind that they represent the ravages of depression in one of the countries least adversely affected, and that they could be paralleled or exceeded in nearly every country of the world.

The changes in the standard of living of the working-class can best be seen from the following table, which shows the movements of the indices of wages and of the cost of living together with the unemployment percentage:—

WAGES, COST OF LIVING, AND UNEMPLOYMENT

	Wages.	Cost of Living.	Unemployment
	July 1914=100.		per cent
1929—1st quarter	194	166	11·5
2nd "	194	161	9·7
3rd "	193½	163	9·8
4th "	192½	166	10·7
1930—1st "	192	164	13·0
2nd "	192½	155	14·9
3rd "	191	156	17·1
4th "	191	156	19·3
1931—1st "	190	150	21·0
2nd "	189	146	21·2
3rd "	189	145	22·6
4th "	188	147	20·9
1932—1st "	187	146	21·7
2nd "	186	143	21·9

From the beginning of 1929 to the middle of 1932, wage rates fell by 4·1 per cent and the cost of living by 13·8 per cent. The real wages of those who remained in work would therefore appear to have increased by about 11 per cent. Unemployment, however, doubled, and at the worst period affected over one in five of the working population. It is not easy to assess the net effect of these two divergent tendencies. On the assumption, however, that unemployment benefit payments are, on the average, one-third of normal wages, the average real income of the working-class as a whole increased by about 1½ per cent. Any such figure is, of course, somewhat of a statistical abstraction. It is subject to all the qualifications mentioned in the first section of this chapter, and in addition it fails to make allowance for the large

numbers of persons who, while not unemployed, were working short time and receiving only part of the standard weekly wages from which the index is calculated. Moreover, in the last analysis the increasing misery of the minority represented by unemployment cannot be mathematically subtracted from the increasing affluence of those in steady work. All that can be said is that the aggregate real purchasing power of the working population, though unequally distributed, appears to have suffered no reduction and may even have shown a small increase, in spite of the ravages of unemployment—a fact which is borne out by the statistics of consumption. It will be appreciated from these facts how much of her more favourable experience Great Britain owes to her policy of importing foodstuffs at the world market price. This policy has recently been abandoned, and it may well be that in future crises falling prices will not be allowed to take the edge off falling wages and rising unemployment.

Relative
prices.

The movements of prices in this period of $3\frac{1}{4}$ years are shown in the table on the next page. The date of June 1932 has been chosen as the end of this period as it was then that the indices of wholesale prices and of general business activity reached their lowest points. It must not, however, be taken as a sharp and clear turning-point, as the improvement was very slight for some time and unemployment, for example, did not reach its maximum until the winter of 1932–33. Even in wholesale prices, the index number for March 1933 was only half a point above that for June 1932. Many of the effects of the period of falling prices were thus carried over into the following period.

The after-
math of
restriction
schemes.

Some of the largest falls shown in this table, as in that for the previous period, illustrate the harmful effects of schemes which attempt artificially to maintain the prices of certain raw materials. These schemes, by maintaining at the start a

price which is unduly profitable to producers, nearly always encourage an expansion of production. This increased production, if it is in the countries imposing the restriction of sales, piles up in unsold stocks; the cost of carrying these sooner or later becomes too great and the whole increased supply has to be dumped on the market with disastrous results on prices. If the increased production is in other countries, the depressing effect on prices is more gradual but none the less potent.

ANALYSIS OF THE FALL IN PRICES BETWEEN MARCH 1929
AND JUNE 1932

(Average fall—39 per cent)

Articles which fell more than the Average		Articles which fell about the Average		Articles which fell less than the Average.	
	per cent		per cent		per cent
Rubber .	84	Hides .	50	Creosote .	24
Copper .	73	Canadian		Raw sugar .	23
Egyptian		wheat .	48	Petroleum .	21
cotton .	68	New Zealand		Refined sugar	18
English		mutton .	48	Tin plates .	18
wool .	63	Tin .	48	Oats .	17
Silk .	62	Coffee .	46	Swedish	
American		Rice .	45	timber .	16
cotton .	60	Flour .	39	Pig iron .	13
Tea .	59	Butter .	39	Petrol .	11
Australian		Cotton cloth	38	Fuel oil .	11
wool .	59	English		Welsh coal .	9
Spelter .	59	mutton	37	Cement .	8
Lead .	58	English		English	
Linseed oil	58	wheat .	34	timber .	7
Jute .	56	Cheese .	34	House coal .	6
Maize .	54	Coconut oil	32	Gas coal .	5
Flax .	54	Barley .	31	Iron bars .	5
Wool tops	52	Cocoa .	31	Steel rails .	0
Cotton		Argentine		Crystals .	0
yarn .	51	beef .	28	English beef	0
		Leather .	25	Potatoes .	68

The three commodities at the head of the first column were all at one time or another subject to restriction schemes or

to other devices designed to maintain prices, and the figures in the table sufficiently illustrate what happens when such schemes break down through inability to control the supply.

Coffee. Coffee is another example. But, although the first modification in the restriction scheme was forced on the Brazilian Government as early as the autumn of 1929, the effects had not worked themselves out by June 1932, with the result that coffee stands in the second column. But the price of coffee continued to fall after other prices had turned upwards, and in the next period it will be found showing the greatest fall. The Brazilian Government has at one time or another acquired vast stocks of coffee in efforts to support the price and has resorted to all sorts of expedients, including burning coffee in locomotives and dumping it at sea, to get rid of the surplus supply.

Wheat. Wheat, another commodity which just escapes inclusion in the first column, was subjected for several seasons to "regulated marketing" by "wheat pools" in Canada and by the Federal Farm Board in the United States. In the face of a declining price-level this policy involved taking wheat off the market and storing it, in the hope of higher prices. Meanwhile Russia, before the war a considerable exporter of wheat but since 1914 a negligible factor in the world market, recommenced exporting on a large scale in the season 1928-29. The importing countries of Europe were during the same period encouraging their own farmers to grow wheat by means of subsidies and tariffs. Thus supply was increasing while demand was declining. The plans for keeping wheat off the market in the United States and Canada succeeded in maintaining the price at first; but this only increased production and stocks and in the end brought about a far greater fall than would otherwise have occurred.

It must not, however, be thought that all schemes for maintaining prices inevitably fail. Where it is possible to

control the production or supply, either in the world as a whole or inside one country, price maintenance may succeed. Examples of this can be seen in the table from the fact that steel rails suffered no fall in price, while the fall in the price of coal was of very moderate dimensions. There is a price agreement among the producers of steel rails, who are in a position to adjust production exactly to demand. The British coal industry was assisted in this period by an Act of 1930, which empowered each district to set a quota for production. Price maintenance is a much easier matter in industry, where the number of producers is small and production is largely dependent on the receipt of definite orders, than in agriculture, where the producers are legion and the crop is sown long before the price is realised.

Steel.

Coal.

Few of the other movements need special comment. The price of petrol has been well maintained because of the increases of the petrol duty which, contrary to the usual practice, is included in the quoted price. Potatoes, which show the only increase in the list, are subject to quite special influences. The low value of potatoes relative to their weight effectively prevents more than very small imports, which were further restricted in this period by legislation. But the domestic crop is subject to large variations from year to year, which produce opposite variations in price. Thus the rise in prices was due to the fact that the domestic potato crop of 1931-32 was considerably smaller than that of 1928-29

Petrol.

Potatoes.

A comparison of this table with that for the preceding period on page 185 is particularly instructive. The two extreme columns of the earlier table contain thirty-one commodities, of which twenty-nine appear in the later table (the omissions being due to change of quotation or some other cause which invalidates the comparison). Of these

Conclusion.

twenty-nine, only twelve appear in the same column in both tables, while twelve appear in the opposite column in the later table. On the other hand, of the commodities in the middle column in the earlier table, more than half also appear in the middle column of the later table. This seems to suggest that there is a certain amount of compensation in price movements. This is not always the case, as is shown, for example, by the relative change in the price of rubber during the present century. Moreover, if the table were extended to include more manufactured products, many would be found which are now permanently lower in price relatively to the general average than in the earlier periods. But the explanation in all these cases is to be found in technical improvements which have reduced the expenditure of human labour needed to produce a unit of the article in question. Where outstanding technical improvements do not occur, and other special circumstances are absent, there is a strong tendency for commodities which stray away from the general average in one period to return in the succeeding period. A similar reflection could be drawn from a comparison of the two tables of Chapter X. This tendency, thus practically revealed in the movements of a number of individual commodities, is one more illustration of the central thesis of this book, namely, that although each commodity has its own special conditions of demand and supply which affect its price, each is also individually influenced by the changes in the value of money.

3. 1932-1937. PRICES RISING

Beginning
of recovery. The lowest point both of prices and of industrial activity was reached in the summer of 1932, although for some months the movement of recovery was slow. In the spring of

1933, in fact, when the American banking system collapsed, there was a relapse in prices which brought the index number almost back to the low point of the previous summer.

The movement of recovery, however, can be said to have taken its beginning in the middle of 1932, and the success of the Lausanne Conference, which finally laid to rest the troublesome problem of Reparations, can be taken as its starting point. The recovery thus begun in Great Britain lasted almost without interruption for five years. The rise in prices continued until April 1937, when a downward movement began which, at the moment of writing, has not yet been reversed. Industrial activity reached its maximum point in August and September 1937, and there has since been a perceptible setback. It is far too early to say whether this setback, either in prices or in production, is of major or minor importance. But for the purposes of the present section, the recovery period can be assumed to have lasted from June 1932 until the same month five years later.

Reference to the charts of price movements at the end of the book will reveal that the rise in prices in this period, though it was of considerable dimensions, was not sufficient to offset the decline of the preceding depression period. The average figure for the *Economist* index of wholesale prices in the year 1928 was 135 (1913=100). The lowest monthly figure in 1932 was 81 in June, and the highest month of the recovery period was 120 in March 1937. Thus the rise in prices between 1932 and 1937 was only about three-quarters of the preceding fall. The movements of the index number of the cost of living were similar, though smaller in range. The average for 1928 was 165 (July 1914=100), the lowest point in 1932 was 136, and the highest figure of 1937 was 160. In this case, therefore, rather more of the lost ground had been made good. But neither wholesale nor retail prices were

Extent of
recovery
in prices.

as high at the top of the recovery movement as they had been before the world depression began.

Devaluation
of
currencies.

This fact is the more surprising because in the intervening period almost every currency in the world has been substantially devalued in relation to gold. The circumstances in which the gold standard was suspended in Great Britain in September 1931 have been related in the previous section of this chapter. The American dollar left the gold standard in April 1933, and its gold value was re-determined, at approximately 59 per cent of the previous parity, early in 1934. The exchange rate between the pound sterling and the dollar has fluctuated since then within a narrow range in the neighbourhood of the old gold standard parity of \$4.86 = £1. Both these two leading currencies can therefore be said to have had their gold value reduced by approximately two-fifths. The French franc was devalued in 1936, and again in 1937 and 1938, and has lost an even larger fraction of its previous gold value than the pound and the dollar. Most of the other currencies of the world have depreciated to greater or less extent. The chief exception is the German Reichsmark, whose official value has been kept at the old figure. But this has only been done by imposing the most rigid control of all exchange transactions, and even then by creating a large array of special varieties of marks which are quoted at wide discounts on the "official" rate of exchange.

Increased
gold
supplies.

The counterpart of a lower gold-value of currencies is, of course, a higher currency-value of gold. The market price of gold in London, which was formerly governed by the official minting price and consequently held close to the figure of 85s. per fine ounce, has risen to 140s. per ounce, and even higher, and the value of gold in other currencies has risen in a similar manner. This has had two consequences. It has greatly increased the monetary valuation put upon the exist-

ing gold stocks of the world. And secondly, by increasing the profits of gold mining, it has stimulated a considerable increase in the output of gold. The result is that the world is now better supplied with monetary gold than ever before. The fact that the level of prices has nevertheless not risen more than it has shows very clearly how the world, with its experiments in monetary management, has departed from the automatic working of the principles expounded earlier in this book.

The following table gives figures, by quarters, for the movement of wholesale and retail prices, of wage rates, and of unemployment, throughout this period.—

WAGES, PRICES AND UNEMPLOYMENT, 1932-1937

	Wholesale Prices.	Cost of Living	Wage Rates	Unemployed
	1924 = 100			per cent
1932—1st quarter	56½	83½	95½	21.7
2nd "	52	81½	95½	21.9
3rd "	54	81	95½	22.9
4th "	53½	81½	94½	22.0
1933—1st "	52	79½	94	22.6
2nd "	54½	78	94	20.4
3rd "	56½	80	94	19.0
4th "	55	81½	94	17.8
1934—1st "	56½	80	94	18.0
2nd "	56½	79	94	16.4
3rd "	57	81	94	16.4
4th "	56½	82	94¼	16.2
1935—1st "	57	80	94¼	17.2
2nd "	58½	80	94½	15.5
3rd "	59	82	95¾	15.0
4th "	61½	84	95¾	14.4
1936—1st "	61½	83	96¾	15.2
2nd "	60½	83	97¼	13.1
3rd "	62½	84	98	12.2
4th "	66½	86½	98	12.0
1937—1st "	72	86½	99¼	12.0
2nd "	74	87½	100	10.4
3rd "	71	88½	100½	10.0
4th "	67	91½	102	11.1

The column showing the unemployment percentage demonstrates how large was the degree of recovery attained in these years. Not only was the unemployment percentage halved, but the total number of persons registered under the unemployment insurance scheme rose rapidly, so that the total number of people employed in 1937 was not merely restored to the pre-depression level, but rose considerably in excess of it. The best single measure of the activity of the country as a whole is the *Economist* index of Business Activity, which is given in Table IX of Appendix D. It will be seen from that table that the degree of business activity in 1937 was 15 per cent higher than in 1929, before the depression.

The history of the past century, which has been analysed in this book, leaves no room for surprise at the fact that recovery follows depression, or even that rapid recovery follows deep depression. But the recovery of 1932-37 can be ascribed to a number of special causes which deserve mention.

Causes of
recovery.

First among them was the departure from the gold standard in 1931 and the subsequent depreciation of the pound sterling. This had both a direct and an indirect beneficial effect. Directly, by greatly reducing the cost of British goods, when that cost was expressed in terms of foreign currencies, it gave a stimulus to British exports and conferred some natural protection on those domestic industries that are faced with competition from abroad. This factor tended to disappear as the other currencies of the world followed the pound sterling off the gold standard, but in the early years of the recovery it was of great assistance to British recovery.

The indirect effect of the departure from the gold standard was perhaps even greater than the direct. The Bank of

England was absolved from its duty of paying paramount attention to the gold reserve of the country; there was no longer any reason why Bank Rate should be raised from time to time to induce an inflow of gold. Accordingly, Bank Rate could be reduced to the lowest level of 2 per cent in July 1932, and has remained there ever since. At the same time, the great War Loan was converted from a 5 per cent basis to $3\frac{1}{2}$ per cent, and this gigantic operation had a powerful influence in depressing all interest rates, with great consequential benefit to business enterprise.

There was another unusual factor at work in the recovery years which is of peculiar significance for a study of prices. It has already been pointed out that the level of prices did not rise either as quickly or as extensively as business activity in general. The cost of living, for example, which stood at 143 in June 1932, was only 144 four years later; it was only after the middle of 1936 that the cost of living began to rise rapidly. In these years, in fact, Great Britain enjoyed the coincidence of business recovery with low prices. This arose from the fact that Great Britain suffered less severely than many other countries from the world-wide depression that set in in 1929. The crisis in the agricultural and raw-material-producing countries was so intense that Great Britain, which imports the larger part of her requirements of food and raw materials, was able to secure her supplies at very low prices. On the other hand, the purely domestic depression at home was surmounted without any very severe reductions in the rates of cash wages. The result can be seen from the table on page 274. It will there be seen that though money wage rates fell between 1929 and 1933 by $5\frac{1}{2}$ per cent, the cost of living declined by over 16 per cent. The real wages of those who remained in work accordingly rose by no less than 13 per cent, and this gain was so

large that it outweighed (in a purely statistical sense) the loss of purchasing power through the rise in unemployment. By the approximate method of calculation employed in the table mentioned, it can be estimated that the real income of the average wage-earner, taking employed and unemployed together, increased in these years by about 5 per cent. When it is remembered that, in addition, the total number of occupied persons was increasing throughout this period, it will be seen that there was a very considerable volume of purchasing power available for maintaining and increasing the level of demand for the products of industry.

This very summary discussion of the recovery years can be concluded by a table, on familiar lines, showing the movements of the different individual prices.

Price Move-
ments.

The most remarkable thing about this table, when it is compared with the corresponding table for the previous period is, once again, the extent to which the same commodities shown in one table as having a large movement have a large reverse movement in the other period. Of the 38 commodities in the two outer columns of the previous table, 27 appear in this table in the opposite column, and only 2 in the same column as before. Those prices which fell less than the average in the depression years rose less than the average in the recovery years. Once again the dominance of the average is illustrated; for most commodities the influence of the changing value of money is greater than their own individual circumstances.

Coffee.

This is not, of course, invariably true, and the more extreme movements in the table can usually be explained by peculiar circumstances. Thus the heavy fall in the price of coffee is attributable to the final breakdown of the abortive efforts at the restriction of supply made by the Brazilian Government. These efforts had the effect of postponing the

fall in the price of coffee until a later period than the other "restricted" commodities, which, as we saw in the last section, collapsed earlier. The very large rise in the price of

ANALYSIS OF THE RISE IN PRICES BETWEEN JUNE 1932
AND MARCH 1937

(Average rise—48 per cent)

Articles which rose less than the Average		Articles which rose about the Average		Articles which rose more than the Average	
	per cent		per cent		per cent
Coffee .	- 19	Coconut oil .	29	Cotton yarn .	81
English		Pig iron .	32	Wool tops .	81
beef .	- 14	Fuel oil .	33	Australian	
Cement .	- 10	Jute .	35	wool .	82
English		Gas coal .	38	American	
timber .	- 8	Barley .	42	cotton .	83
Potatoes .	- 5	New Zealand		English	
Petroleum	- 3	mutton .	42	wool .	85
Steel rails	0	English		Cocoa .	87
Crystals .	0	wheat .	43	Egyptian	
Oats .	1	Swedish .		cotton .	95
Argentine		timber .	44	Flour .	101
beef .	2	Creosote .	47	Flax .	101
Raw sugar	3	Maize .	51	Hemp .	106
Petrol .	3	Leather .	51	Hides .	109
Cheese .	7	Bacon .	59	Tea .	125
Refined		English		Canadian	
sugar .	8	mutton .	62	wheat .	127
Welsh coal	8	Tin plates .	63	Linseed oil .	145
Silk .	9			Tin .	156
Rice .	14			Copper .	180
Butter .	17			Spelter .	201
House coal	19			Rubber .	764
Lead .	21				
Iron bars	22				
Cotton					
cloth .	24				

rubber, at the other end of the table, is very largely only a Rubber. reflection of the low level to which the price of rubber had fallen in the depression. In spite of the enormous proportionate increase of 764 per cent, the price of rubber in March

1937 was still only slightly above the level of 1928-29 and considerably below the figures of earlier years. A new restriction scheme for controlling the price of rubber came into force in the early months of 1934. There are also similar schemes in force for copper, tin and tea, to mention only a few of the commodities showing the largest price rises. The managers of these schemes profess to have learned the lessons to be derived from the fate of the earlier schemes. They claim that they will not try either to restrict production unduly or to drive prices up to uneconomic levels. Whether they will succeed, the next world-wide depression of prices will show. But at the time that these words are written (spring 1938) it is still too early to say whether that next world-wide depression of prices has already arrived.

BIBLIOGRAPHICAL NOTE

The restoration of the gold standard on the continent of Europe is discussed in R. G. Hawtrey's *Monetary Reconstruction*. For the controversy over the restoration of the gold standard in Great Britain see J. M. Keynes' *Tract on Monetary Reform* and *The Economic Consequences of Mr. Churchill*; T. E. Gregory, *The First Year of the Gold Standard* and *The Gold Standard*; and R. G. Hawtrey, *The Gold Standard in Theory and Practice*. The two last-named books also describe the collapse of the gold standard in 1931. An interesting discussion of inflation will be found in J. van Walre de Bordes, *The Austrian Crown*. For the problems of the gold standard see the publications of the Gold Delegation of the Financial Committee of the League of Nations. The events of the years 1929-34, as well as the causes of the depression, are lucidly discussed in *The Course and Phases of the World Depression* and in the annual *World Economic Survey* published by the League of Nations. The industrial difficulties of Great Britain are treated at length in the reports of the (Balfour) Committee on Industry and Trade; several

of the essays in A. Loveday's *Britain and World Trade*, are also interesting in this connection.

Statistical material will be found in the *Statistical Abstract*, the *Abstract of Labour Statistics*, both published by H.M. Stationery Office, and in several publications of the League of Nations referred to in the Bibliographical Notes to Appendices C and D.

CHAPTER XII

GENERAL CONSIDERATIONS

Conclusions of this book in 1912. THE original edition of this book, published in 1912, contained a chapter with this title which attempted to summarise the problem of prices as it stood at that time and to draw conclusions from the historical review of price movements in the nineteenth century. One of these conclusions was that movements of prices did not, in the long run, exercise the dominant influence on the gradual expansion of the real national income, which was said to depend "much more upon the advance of science and discovery and on the training, education, and organisation of labour, than on the rise or fall of prices". In general, it was suggested that "while rising prices tend to direct capital and labour into new uses, a continued depression of prices stimulates more economical methods in old ones". On the other hand, the definite conclusion was reached that price movements had a profound influence on the distribution, as between class and class, of the national income, falling prices making for a higher standard of living of the working-class, and *vice versa*. Exceptions to this general rule were admitted, such as the declining standard of living in the period of falling prices prior to 1850, and it was further pointed out that the standard of living provided by a given money wage depends, not upon the wholesale price-level, but upon the movement of sectional retail indices, as well as on factors outside the possibility of numerical measurement, such as opportunities for leisure and education. But "to sum up", it was maintained,

“we have to balance the stimulating effect of rising prices on industry, against the disadvantage to the great mass of persons whose incomes are more or less fixed. The verdict must, of course, be a matter of judgment, but we may conclude that on the whole the social well-being is best advanced when prices are stationary or slightly declining.”

Turning from diagnosis to remedies, it was pointed out that action to get rid of the harmful effects of fluctuations of prices could take one of two alternative courses. The first of these was that incomes and contracts should be made to vary in order to offset movements of prices. In its fullest form this suggestion was that made by Jevons in propounding his “tabular standard of value”. The adoption of the tabular standard would mean that all payments which are now fixed in terms of money, such as wages, rents, debts, etc., should henceforth be fixed in terms of purchasing power, and that the actual amount of money to be handed over should vary in proportion to the movements of an index number of prices. Thus if a man’s salary were £200 a year, and prices rose by 20 per cent, he would automatically be paid £240. This suggestion, however, though theoretically desirable, was dismissed as impracticable “on account of the difficulty of obtaining a general understanding of so complex a standard, and because of the frequent recalculations that would be necessary whenever the responsible official authority announced a change in the value of the sovereign”. Less ambitious forms of the same general idea were, however, suggested, including the conclusion of long-period contracts, not in terms of money, but in terms of an average of commodities in general, or of the average price of any particular group of commodities; the variation of wages in accordance with movements in the cost of living; or—less rigidly—the

Falling prices were considered best for social welfare.

There were two methods of avoiding the harmful effects of fluctuations: (i) the “tabular standard”,

acceptance of price changes as one of the factors to be considered in fixing wages.

(u) price
stabilisa-
tion.

The "com-
pensated
dollar".

All these suggestions, however, involved a comprehension of index numbers by the general public and a willingness to apply them. This obstacle seemed so considerable twenty years ago that attention was turned to the second alternative, that of regulating the value of the standard itself, so that the general price changes should not occur at all. The best-known suggestion on these lines was Professor Irving Fisher's plan for a "compensated dollar". This plan was founded on the fact that a rise in the general level of prices is a fall in the value of gold; it is, indeed, the only way in which such a fall can show itself under gold standard conditions. Professor Fisher therefore suggested that the gold content of the dollar should be varied in order to offset the movements in the price-level. Thus, if the general price-level rose by one per cent, the weight of gold exchanging for a dollar should likewise be increased by one per cent. This would, of course, diminish the price of gold (which is merely an inverse way of describing the weight of gold in a dollar) by one per cent; the fall in the value of gold relatively to other commodities in general would find expression in the fall in the price of gold, the need for a rise in the general price-level would be obviated and the rise that had already occurred would be corrected. The method of correction would be that the Central Bank, finding its gold reserve, at the new valuation, worth less and its reserve ratio consequently diminished, would be compelled to contract credit and initiate a fall in prices. Such a plan would, of course, be equally applicable to the pound sterling or to any other gold standard currency.

It was pointed out in 1912 that this scheme involved certain difficulties: it would, for example, involve Central

Banks or Governments in constant losses or profits according as the monetary value of their gold stocks was revised downwards or upwards. Moreover, it was considered doubtful whether such a rigid mathematical scheme could solve the problem, in view of the manifold influences—some temporary and some permanent—which cause price fluctuations. Nevertheless, the absence of any alternative method of fixing the currency in a definite ratio to commodities was considered to make the suggestion worthy of every consideration.

“The two courses thus remain—”, the chapter concluded, “on the one hand, of facilitating the adjustment between incomes and prices and of regulating long-period contracts by popularising the use of index-numbers; and, on the other, of controlling the value of the currency and so preventing price changes altogether. Both solutions have their disadvantages, and neither would be of the least practical importance were it not for the revolution that has occurred in the methods of gold-mining. But as the difficulty of rising prices grows more acute, these alternatives will thrust themselves more prominently on public attention. In the meantime, it is of the utmost importance that there should be clear thinking as to the forces which determine the general level of prices.”

These were the conclusions of a study of price movements two decades ago. Since then events have carried the controversy on to a larger field and enhanced both its scale and its urgency. Two years after the first edition of this book was published the outbreak of war started a period in which movements of prices have been far more sudden and far more extensive than any with which it was concerned. In the past twenty years the world has had plentiful experience of both sudden uprushes of prices and equally drastic declines. In Great Britain, where for fourteen years we have been suffering

Change of
circum-
stances
since 1912.

from more or less rapid declines of the price-level, public opinion is naturally prone to concentrate upon the evil effects of such declines; and in recent years the same is true in even greater degree of the United States. The Continental nations of Europe, however, with their vivid memories of the post-war inflations, which wiped out individual savings, impoverished entire classes of the population, and upset the whole basis of society, are still more concerned to prevent further excessive rises of prices than to avoid declines. But whatever the differences of attitude in the various countries, the public opinion of the world is now clearly aware of the effects of price movements and painfully conscious of the necessity of correcting them.

In these circumstances the discussion of ways of obviating the effects of small and gradual price changes, which was the purpose of this chapter in 1912, has been superseded by critical issues of world-wide importance and great urgency. It has been found convenient in describing the events of the post-war epoch to treat the years 1922 to 1929, in which the price-level fell by 10 per cent in seven years, as a period of stability, and public opinion would probably consider that the problem of prices had been largely solved if fluctuations did not exceed one percent per annum. What is most urgently required at present is not absolute stability of prices but deliverance from the large and destructive swings of the price-level from which the world has been suffering since 1914.

The two
alternative
solutions
remain.

Though the scale of the problem has changed, however, the two main alternative methods of meeting it remain: either contracts and other payments now fixed must be made to change with variations in the value of money, or else those variations themselves must be removed. The experience of the past twenty years has provided a great

deal of useful material for judging the possibilities of these alternatives, as well as much discussion of the dilemma by economists and others.

As regards the first alternative, in one respect considerable progress has been made. Before the war the insuperable obstacle to any immediate adoption of the "tabular standard" or of any of its modifications was that of persuading the general public to understand and accept index numbers of prices. The war-time rise of prices was in this respect an efficient educator. Before its close wages were being quite generally fixed with reference to changes in the index number of the cost of living and throughout the ensuing years the public has kept its eyes on the movements of prices. In countries such as Germany, where, in the throes of extreme inflation, prices soared to the dizzy heights, the whole population daily adjusted the monetary basis of its existence according to an index number of the depreciation of the currency. Times had, indeed, changed when the first thing the apple woman did as she drove her cart into the Berlin market-place was to inquire the price of the dollar. There must be few citizens to-day in any European country who have never heard of index numbers. Indeed, the danger is that their imperfections and the specialised character of most of them are too frequently overlooked. Because indices of wholesale prices can be easily and promptly compiled, for instance, they are often popularly taken to be representative of the movements of prices in general.

In other respects, however, this method of dealing with fluctuations in the value of money has not made much progress. During the war, when prices were rising rapidly, a large proportion of wage contracts were revised so as to vary with changes in the cost of living. After the war, however, when prices turned downwards and it was seen that

these variable wage contracts could lead to reductions of money wages as easily as to increases, Labour opinion turned against them and many of them were abandoned. In Great Britain the deciding factor against them was the opinion of the trade unions, but as the same principle was also adopted during the war and largely abandoned after the war in countries where trade union influence is not so strong as in this country, it must be put down to a universal unwillingness of wage-earners to think of their income in terms of the goods it will buy rather than in terms of the monetary units it comprises, at least when reductions of income are in question. The result of this experience has been that, in Great Britain at least, monetary wage rates have been unusually rigid during the recent period of falling prices.

The tabular standard has found little favour.

So far as contracts other than wage contracts are concerned, no progress whatever has been achieved in drawing them in terms of real values instead of in money. Apart from one or two isolated instances, contracts continue to be made exclusively in money. One interesting exception was provided by the Reparations agreement made between Germany and the Allies after the investigations of the Dawes Committee in 1924, in which it was laid down that the Reparations annuities payable by Germany might be varied if the purchasing power of gold altered by more than 10 per cent. Before this safeguard could be applied, however, it was removed, at the request of the debtor, in the agreements made at The Hague in 1929—by the irony of fate on the eve of the great depression, when it would have worked strongly in Germany's favour.

On the contrary, rigidity of prices has increased.

Not only have debt contracts continued to be made in terms of money, but there has been a great increase in the volume of indebtedness in the past two decades, notably on the part of Governments and primary producers, but also in

some countries on the part of industry. Indebtedness has therefore come to play a larger part in the economic structure, with the result that a larger proportion of the expenses of Governments and of the cost of production of raw materials and manufactures has come to be fixed in terms of money and subject, short of default, to no downward variation when the level of prices in general declines. In other words, at a moment when there has been the greatest need for flexibility, the rigidity of the price structure has actually increased. The harmful effects of price movements, as was pointed out at the beginning of this book, are entirely due to the fact that all prices (including wages and debts under the head of prices) do not move upward and downward at an equal rate and to the same extent. This being so, it can easily be seen that an extension of the area of rigidity will increase the damage done by any given variation in the value of money and considerably hamper and delay the readjustments which must be made before the normal functioning of the system can be resumed.

Moreover, even if those prices which are now held rigid by custom or by contract could be made to vary with movements in the value of money, the problem would only be half solved. When the general trend of prices is downward or upward, some categories of prices are more affected than others for reasons inherent in the economic structure of the different industries. In agriculture, for example, where the producers are numerous and hard to organise, any decline in the level of demand for the products of the industry is usually translated into a large fall in prices, since the individual farmer will find no incentive to diminish, but rather to increase, his production. In recent years Governments in many countries have attempted to force or persuade agricultural producers to diminish their output when prices fall,

but the schemes of this kind which were in operation before the present depression were uniformly unsuccessful, while those which have been set on foot more recently, though they have not been in force long enough for a final verdict to be possible, are meeting with manifold difficulties. In industry, on the other hand, especially in the more highly developed mechanical branches, a decline in demand is frequently met by a voluntary restriction of production, whether organised by an association of producers or inspired by each firm's self-interest, with the result that the decline in prices is moderated. This divergence between agricultural and industrial prices can be clearly seen from the table on page 197. Clearly, no reform on the lines of the "tabular standard" would be able to offset disparities and disequilibria of this nature. Indeed, short of a rigid control of all production, it is difficult to imagine any means of ensuring that all industries, with all their divergent forms of organisation, shall react to any given monetary change in the same manner.

The ideal of the stabilisation of prices is now very generally accepted.

For all these reasons post-war thought on the problem of prices has been almost exclusively directed towards the second alternative solution, that of preventing changes in the purchasing power of money. The ideal of stable prices is now very generally accepted by economists and the general public. Many economists would prefer a slowly falling price-level, for which several arguments have been advanced in earlier chapters. Even among the advocates of absolute stabilisation, the majority would reject the absolute stabilisation of any particular index number of prices, certainly of any existing index number. But, apart from these differences of detail regarding the ultimate object, there is a substantial measure of agreement that the main object of monetary policy should be to achieve a vastly greater measure of stability of prices than has prevailed since 1914.

The use of the phrase "monetary policy" is in itself an illustration of the change that has come over the public attitude to the problem. In 1912 no country could have been said to have a monetary policy other than the minor and temporary adjustments made by the Central Banks in a few countries such as Great Britain. There was certainly no recognition in any country that regulation of the course of prices was any part of the business of Governments. Acceptance of this responsibility is, indeed, a matter of very recent years. Throughout the period of American prosperity from 1922 to 1929 the Federal Reserve Banks were generally believed to be pursuing a policy of price stabilisation, but they refused either to be formally charged with the responsibility for attaining that object or indeed to acknowledge it openly as their aim. It is only in the present depression, when the catastrophic fall of prices has forced the question to the fore, that the problem of prices has entered the programmes of Governments. In the last two years the British Government has officially proclaimed its desire to see a rise of prices, while the United States Government has placed the restoration of prices to their previous level and their stabilisation at that level in the very centre of its economic objectives.

"Monetary policy" also implies something much more complex and flexible than the "compensated dollar" plan which held the field in 1912. That plan rests on the assumption that a rise of prices must be due to an expansion of credit caused by a relative excess of gold and, conversely, that a fall of prices is due to a contraction of credit brought about by a relative shortage of gold. If the plan does not assume a direct causation of price changes by increases or decreases in gold reserves, it at least postulates that they can be corrected by adjusting the size of gold reserves, for that is the beginning and end of the proposal. Now the earlier

But little progress has been made towards attaining the ideal.

chapters of this book have adduced a great deal of evidence in favour of the belief that the relative abundance or deficiency of gold was the largest factor in determining the underlying trend of prices during the nineteenth century. But it was not suggested that it was possible—or even reasonable—to trace any connection between the variations of gold reserves and the cyclical, year-to-year and month-to-month movements of prices, with their accompaniment of boom and slump. Yet it is these shorter-period movements, swollen to alarming dimensions, which now constitute the major part of the problem of prices. Even in 1912, it was suggested in this chapter that many factors other than the volume of currency entered into the determination of the price-level, and the facts mentioned in Chapters X and XI relating to the rise of prices in 1919–20 and the subsequent fall in 1920–21, indicate that variations in the volume of money are of limited assistance in analysing the causes of cyclical fluctuations of prices.

The “compensated dollar” plan in a modified form was, for a few weeks in the autumn of 1933, adopted by the United States Government, not indeed as a means of stabilising prices but as a means of raising them after the great fall of the years 1929 to 1933. The price of gold was raised almost daily, but the response of the general price-level was disappointing to the protagonists of the scheme, and after a few weeks it was tacitly abandoned. It seems likely that the chief utility of any such plan must in the future be to prevent any shortage or deficiency of gold from adding unnecessary disturbances to those which already exist within the body economic; it is unlikely that it will be of much assistance in dealing with cyclical fluctuations of prices.

It has been suggested from time to time that the task of regulating the long-period value of gold should be placed

in the hands of an international authority, such as the Bank for International Settlements. In its most logical form the suggestion is that Central Banks should take as their reserves not actual gold but "gold notes" issued by the Bank for International Settlements, which would own the gold. When a tendency to shortage or excess of gold made itself apparent the B.I.S. could vary the weight of gold represented by each "gold note", thus affecting the volume of them outstanding. But any such suggestion clearly depends not only upon the restoration of the gold standard in those countries which have abandoned it, but also upon the development of a much higher degree of international financial co-operation than has hitherto been achieved. It may one day be a practical suggestion, but at present it appears somewhat academic.

In default of an international solution to the problem, each country (or group of countries) must make its own independent attempts to stabilise the price-level. Unless we can assume the coincidence that each country should independently attain the same degree of success, this means that the pursuit of stabilisation involves the abandonment of fixed rates of exchange between the different currencies. This is, indeed, the dilemma in which modern monetary policy finds itself. It can aim either at stability of the exchanges, which, if recent experience is repeated, will make internal price stability impossible, or at stability of the internal price-level, leaving the exchange to fluctuate. The second alternative is usually known as the "managed currency" since it involves the "management" of the currency by the Central Bank so as to produce price stability. The implied contrast with the "automatic" or "unmanaged" gold standard is, in these days, misleading, for, as was discovered in Great Britain between 1925 and 1931, a high degree of "management" is necessary for maintaining

Inter-
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The
dilemma—
stable
exchanges
or stable
prices?

stability of the exchange rates. The term "managed currency" is therefore something of a misnomer, but it has the convenience of a generally accepted terminology.

The fundamental argument for a managed currency is that freedom from the obligation to preserve stable exchange rates and to conserve its gold reserve would enable the Central Bank to devote its attention to internal price stabilisation. The more optimistic claim that by this means the trade cycle could be entirely overcome, while the more moderate claim only that it would enable the country adopting the policy to insulate itself from cycles of foreign origin. A more practical argument in favour of a managed currency is that in the conditions of the post-war world any attempt to restore the gold standard will merely repeat the experience of 1925-31, when the effect was to disrupt the economies of most countries without, in the end, succeeding in maintaining stable exchange rates. This, for example, is the reason for the pursuit of a managed currency policy by Great Britain since 1931—not any conscious preference for such a policy but the absence of any desirable alternative.

The opponents of a managed currency, on the other hand, point out the disadvantages of fluctuating exchange rates. Such movements add greatly to the difficulties of international commerce and make long-term financial transactions, such as international loans, well-nigh impossible. Moreover, there is little hope of being able to remove any of the barriers to trade now imposed by tariffs, quotas, and exchange restrictions, so long as those countries whose currencies are on the gold standard believe their trade to be at the mercy of depreciating currencies elsewhere. Furthermore, they argue that fluctuating exchanges will prevent any real stability of the domestic price-level, for, as was pointed out on page 48, there are some prices in every country which

are immediately affected by any change in the relative values of currencies. Even if these difficulties incidental to fluctuating exchange rates did not exist, the opponents of the managed currency make a great deal of the practical difficulty of selecting the index number whose stability is to be sought. Is it to be an index number of the prices of wholesale commodities, many of which are imported and few of which are of immediate importance to the man in the street? And if a retail index number, how is a list of commodities to be compiled which shall be equally representative of the expenditure of the different classes of society? It may be answered that there is plenty of room for greater stability of prices without defining too closely which index number is to be the criterion. It must, however, be admitted that these practical considerations present manifold difficulties.

A more fundamental question is whether stability of prices is, in the last analysis, the correct ideal. Marshall long ago suggested that under an ideal system of currency prices should fall at such a rate that receivers of fixed incomes (such as annuitants, civil servants, etc.) should secure a fair proportion of man's increasing control over his material environment, that is, that the purchasing power of a given income should increase with improvements in the arts of production and transport. Such a fall of prices would not have any depressing effect upon enterprise in general, for by definition the fall in prices would be no more rapid than the fall in average costs. Indeed, it is arguable that to maintain a stable price-level while costs of production are falling has the same inflationary effect as a rise in prices. Such at least appears to have been the experience of the United States before 1929. But in this respect also the argument for *greater* stability is not open to the same objections as that for *absolute* stabilisation. The fall of prices needed to keep pace with the increasing

Is price stability desirable?

productivity of industry would be very small, possibly not exceeding on the average one per cent per annum, and it is open to the advocates of a managed currency to maintain that such a gradual fall, when compared with the violent swings of the last twenty years, is indistinguishable for all practical purposes from stability.

Or possible? To most people, however, the deciding element in the controversy will be the practical question—can a managed currency give a reasonable prospect of price stability? There is no reason to believe that Central Banks, however assiduously they apply themselves to the problem, will find it easy to solve. Indeed, the experience of recent years seems to point to the belief that the control of prices is a task of the utmost difficulty. The causes of instability are many, monetary and non-monetary, visible and invisible, easily influenced and extremely refractory. Those in control of monetary policy have to contend with the difficulties, first, of diagnosing the situation; second, of selecting the policy needed for the particular circumstances of the case; and thirdly, in any but the most autocratic of dictatorships, of securing public acceptance of the policy when selected. This last difficulty is by no means the least, for monetary policy, if it is to anticipate and reverse the swings of optimism and pessimism which play a large part in the causation of the trade cycle, must necessarily fly in the face of popular sentiment whenever its influence is most necessary.

These considerations lead many people to the conclusion that a managed currency, though an attractive ideal, is nevertheless impracticable. They point out that in the great majority of cases in which the restraining link with gold has been snapped, disaster has sooner or later ensued. The natural instability of the modern credit system, coupled

with the temptation to improvident public finance which inconvertibility offers, have always been in the past, and, they suggest, always will be in the future, strong enough to outweigh the pious aspiration for stability of prices. It is therefore better, they argue, to accept the known defects and the known advantages of the gold standard rather than risk the almost inevitable disaster of an inconvertible currency. To these arguments the protagonists of a managed currency make the rejoinder that if stability has not been secured in the past it is because it has never been deliberately sought. In the past inconvertibility has been a symptom of profound economic disorder, and it has been the underlying disorder rather than any inherent qualities of inconvertibility which have caused the disaster. The history of those currencies, which though becoming inconvertible in 1931 through the force of circumstances, have since been managed in the interests of stability (the pound sterling and the Swedish crown are the outstanding examples), is encouraging, though the experiment has not yet run long enough for final conclusions to be possible.

These are some of the arguments used on either side of the greatest of present-day monetary controversies. The conflict cannot be resolved here. Indeed, it is probable that the majority of those who have studied the problem have failed to come to any firm conclusion. At the moment the alternative appears to be a choice of evils. The fact that in the current depression no country which has remained on the gold standard has shown any marked signs of recovery, while no country which has left the gold standard has failed to improve to some extent, is a telling argument against exalting exchange stability into a fetish. On the other hand, those countries whose currencies are now fluctuating are all so impressed with the dangers and difficulties of

inconvertibility that they have all expressed their intention of ultimately returning to gold.

A possible
com-
promise.

The present is therefore an unfavourable moment for prediction or for definite decision. It is possible that some form of compromise will be worked out by which day-to-day fluctuations in the exchanges can be avoided without keeping any fixed obligation to maintain permanent exchange stability. One form of this policy has been pursued with some success for the past two years by the British Government through the agency of the Exchange Equalisation Account, by which it has attempted to prevent purely temporary influences from disturbing the rate of exchange, without interfering with the more permanent and genuine forces. Even this intervention, however, has not prevented considerable alterations in the exchange rate, and to bring the foreign exchanges under direct Governmental control clearly runs the risk of abuse, especially if every country adopts a similar policy.

Another possible and more important variant of the same idea, which would not involve the same disadvantages of secrecy and arbitrary control, would be to vary the gold parity of the currency from time to time according to changes in the ratio between the domestic price-level and the world price-level, but in the intervals between each variation to operate each currency as if it were on the gold standard, with free inter-convertibility of gold and currency. This proposal should be distinguished from the "compensated dollar" plan; it proposes that the alteration in the gold parity should take place, not in order to bring about a desired change in prices, but in order to adjust the exchange value of the currency to price changes that have already taken place; it would play, not a causative, but a purely passive rôle.

The case for such a plan rests on the assumption that

comparative equilibrium will not quickly be restored in the world's affairs and that countries will not take the risk of exposing themselves to the results of violent changes without a more flexible means of defence than the constant readjustment of their internal price and wages structure—with all the social disturbance that this entails. Tariffs and quotas are a clumsy way of meeting a radical change in another country's currency and at best can only bring about equilibrium in the trade balance by reducing it. If clear and fool-proof rules could be devised and limits laid down within which parities might be varied, such a system—it is claimed—might tide us over the years until the times are less troubled, while the existence of a "safety valve" would increase the willingness of countries to accept an interim solution quickly.

There are, of course, obvious difficulties. The rules governing such a system are not easy to define, and if the variation of parities remains largely a matter of discretion, it will be extremely difficult to keep the question out of politics. When once public pressure is allowed to intervene, experience shows that it is wellnigh impossible to check inflation. Trade agreements would be impossible unless the conditions under which parities may vary were rigidly defined; the restoration of international lending would be extremely difficult if the exchange were likely to vary; and the imminence of any change would encourage speculation and large movements of floating capital such as have proved so embarrassing during the crisis years.

These arguments are powerful; but ways may be designed for overcoming them. In any case, some provisional solution is essential, for it may be taken for granted that countries will not in present circumstances take the plunge and assume forthwith the full obligations of the Gold Standard. Even if

all the world were prepared to stabilise, we do not yet know at what relative values of the various currencies the world economy would work most smoothly. At the moment of writing the risk of competitive depreciation has by no means been removed.

An international monetary standard implies an international economic system.

The difficulty, however, goes much deeper than purely monetary considerations. The reader of the preceding pages cannot fail to have been struck by the difference of treatment adopted in dealing with the pre-war and post-war periods. In the former the price question was treated more or less as one general problem. In the post-war period not only have the changes been much more violent but also the currency exchange problem has thrust itself right into the foreground. This is the consequence not of monetary idiosyncrasies but of the great underlying changes that have thrown out of gear the economic balance of the world.

Merely linking to gold in itself is not enough either to prevent such changes or to adjust them smoothly and without friction. Among them we may note a shifting of the centre of gravity of the world's economy, which means that the rôle of certain countries is no longer the same as before. Many countries which are no longer content to exchange their raw material for manufactures have insisted, for social and political reasons, on the building up of an industrial population. The virtual strangling of Europe's normal trade during the war diverted activity in distant parts of the globe and opened markets for countries which had not previously traded in them. The new interests thus created have resisted a return to the pre-war status. The spread of knowledge and mechanical improvement has abolished the Western nations' monopoly of the industrial arts, created a desire for greater diversity of production and stimulated economic nationalism

everywhere. Attention has been concentrated on the direct gain which this policy seemed to offer while the much greater indirect loss involved has been overlooked. The older industrial countries have tried to defend themselves against these tendencies by stimulating their own agriculture.

Speaking generally, the improvement in the arts of production and in man's control over nature have resulted in economy of labour in both Agriculture and Manufacturing. This has involved the adjustment of labour to new purposes. The process is the sign and proof of the progress of civilisation; but it is difficult to make the transfer quickly, and meanwhile everyone tries to pass on the problem of readjustment to someone else. Thus, European countries have tried for social reasons to retain their agricultural peasantry, and have thrust upon Canada the need of modifying its natural rôle as one of the world's great granaries.

Such deliberate interferences with the natural lay-out of world economy would alone have upset the natural equilibrium of trade. The position was complicated by an impossible debt structure, by the dominating influence on prices of the U.S.A.—a country with an immature and untried banking system—and by the ebb and flow of great quantities of fugitive capital. The restored Gold Standard—in a new form, with its reserves concentrated in Central Banks and therefore not operating directly on circulation, and in the hands of institutions whose personnel was in many cases without experience—was expected to overcome all these difficulties and produce equilibrium.

It failed—and while these conditions persist it would fail again.

The question, therefore, that we have posed—namely, whether we should return to gold either provisionally or finally—is not a mere matter of monetary technique,

important though that is, it depends on the answers to more far-reaching questions.

Granted that exchange stability is a condition without which no recovery from the present deadlock, which is restricting international trade and preventing economic revival, will be possible, are the nations ready to create conditions under which an international standard can function?

These conditions imply both a desire and a willingness to recreate an international system. They premise peace, mutual confidence, and a recognition of each country's active interest in the prosperity of its customers. It is only against such a background that we can expect a sufficiently free movement of goods to permit of the recovery of international trade. Without such a recovery an international monetary system will be doomed to failure. It cannot be pretended that these conditions yet prevail.

Conclusion. The problem of prices is therefore a long way from solution—as far, if not further, than it was in 1912. If such progress as has been made in the intervening years in the technique of monetary control has been more than matched by the scale of the task that has presented itself for solution, it has fortunately also been accompanied by a growing appreciation of the urgency of its solution. It is pure gain that the public opinion of the world now realises that, with the sole exception of the preservation of peace, no more important problem faces the twentieth century than that of securing the economic system from the disastrous oscillations in the value of money which since 1914 have played havoc with man's material well-being. For if concentrated attention is paid to the problem, there is good reason to hope that it will not ultimately prove to be beyond the wits of mankind to devise means of taming and controlling the monetary system, the most wonderful of all his social inventions.

BIBLIOGRAPHICAL NOTE

Discussions bearing on the conflict between the gold standard and the "managed" currency will be found in the works of Keynes, Gregory, and Hawtrey cited in the Bibliographical Note to Chapter XI. Mr. Keynes' *Treatise on Money* is interesting in connection with the attempt to find a compromise between the fixed gold standard and national monetary independence. Advocacy of a return to the gold standard in present circumstances will be found in Professor Lionel Robbins' *The Great Depression*, which also contains a brilliant account of the origin of the crisis. The general problem of world economic policy is discussed in Sir Arthur Salter's *Recovery*.

APPENDIX A

ON INDEX NUMBERS OF PRICES

A PRICE index number is a device for ascertaining the average change in the prices of a number of commodities. Prices are quoted in all sorts of denominations: bread per quarter, wheat per hundredweight, coal per ton, milk per gallon, and cattle per head. Such quotations are incomparable with one another, and the method of index numbers is needed to reduce them to a common basis. If we have several series of price quotations for different commodities, an index number may be formed by taking the price of each article at a given time as the basis—these bases commonly for convenience being represented by the figure 100, though any other numeral, of course, could be used—and calculating the remaining price quotations for each commodity as a proportion of the basis price. In Table I prices of British wheat, for example, are shown from the beginning of the nineteenth century not only in shillings per quarter, but also as percentages of the price in 1900. If a similar operation is performed for other commodities, we should obtain several series of percentage figures which could be compared with one another. Thus, if 1900 is taken as the basis year, and it is found that in 1910 wheat has risen 16 per cent, and is, therefore, represented by the figure 116; beef has risen 7 per cent, represented by the figure 107; tea has fallen 14 per cent and is represented by the figure 86; figures reckoned on the same principle for potatoes, barley, mutton, bacon, sugar, coffee, and rice being 92, 93, 107, 125, 111, 97, and 98 respectively, we could take an average of these figures and say that the index number (unweighted) of this food group is 103·2, showing a rise on the whole of 3·2 per cent. By using this method we may obtain an index number which will include as many commodities as we can find quotations for.

In practice, the majority of wholesale price index numbers do not include a very large number of commodities. The chief reason for this is the difficulty of finding many commodities which are

TABLE I
ANNUAL AVERAGE GAZETTE PRICE OF BRITISH WHEAT
PER QUARTER

		Per cent of 1900.			Per cent of 1900			Per cent of 1900
1801	119/6	444	1847	69/9	259	1893	26/4	98
1802	69/10	258	1848	50/6	188	1894	22/10	84
1803	58/10	218	1849	44/3	165	1895	23/1	85
1804	62/3	232	1850	40/3	150	1896	26/2	97
1805	89/9	334	1851	38/6	143	1897	30/2	112
1806	79/1	294	1852	40/9	152	1898	34/-	126
1807	75/4	280	1853	53/3	198	1899	25/8	95
1808	81/4	303	1854	72/5	270	1900	26/11	100
1809	97/4	361	1855	74/8	277	1901	26/9	99
1810	106/5	386	1856	69/2	257	1902	28/1	104
1811	95/3	354	1857	56/4	209	1903	26/9	99
1812	126/6	470	1858	44/2	164	1904	28/4	105
1813	109/9	409	1859	43/9	162	1905	29/8	110
1814	74/4	276	1860	53/3	198	1906	28/3	105
1815	65/7	244	1861	55/4	202	1907	30/7	113
1816	78/6	288	1862	55/5	202	1908	32/-	119
1817	96/11	360	1863	44/9	167	1909	36/10	137
1818	86/3	320	1864	40/2	150	1910	31/8	118
1819	74/6	277	1865	41/10	155	1911	31/8	118
1820	67/10	252	1866	49/11	186	1912	34/9	129
1821	56/1	205	1867	64/5	239	1913	31/8	118
1822	44/7	166	1868	63/9	237	1914	34/11	130
1823	53/4	298	1869	48/2	179	1915	52/10	196
1824	63/11	238	1870	46/11	172	1916	58/5	217
1825	68/6	255	1871	56/8	211	1917	75/9	281
1826	58/8	218	1872	57/-	222	1918	72/3	268
1827	58/6	217	1873	58/8	218	1919	72/6	269
1828	60/5	225	1874	55/9	207	1920	84/11	315
1829	66/3	246	1875	45/2	168	1921	44/7	166
1830	64/3	239	1876	46/2	172	1922	40/7	151
1831	66/4	246	1877	56/9	211	1923	41/5	154
1832	58/8	218	1878	46/5	173	1924	52/2	194
1833	52/11	197	1879	43/10	163	1925	53/3	198
1834	46/2	172	1880	44/4	165	1926	50/9	189
1835	39/4	146	1881	45/4	168	1927	42/2	157
1836	48/6	180	1882	45/1	168	1928	40/8	151
1837	55/10	204	1883	41/7	154	1929	40/8	151
1838	64/7	240	1884	35/8	133	1930	25/9	96
1839	70/8	262	1885	32/10	122	1931	26/1	97
1840	66/4	247	1886	31/-	115	1932	22/10	84
1841	64/4	239	1887	32/6	121	1933	21/11	81
1842	57/3	216	1888	31/10	118	1934	21/10	81
1843	50/1	186	1889	29/9	110	1935	23/8	88
1844	51/3	191	1890	31/11	118	1936	32/10	123
1845	50/10	189	1891	37/-	138	1937	42/-	157
1846	54/8	203	1892	30/3	112			

regularly quoted in a standard form; but it is found, in normal times at least, that an average of the prices prevailing in the forty or so chief produce markets does reflect the direction, if not the precise extent, of movements in the general price-level.

It may be urged that a system of averaging which gives equal weight to all the commodities under consideration would not present a correct view of general wholesale prices, and that a theoretically perfect index number would permit more important commodities to exercise a greater influence on the index number than the less important ones. For example, if the price of wheat rises 10 per cent and the price of pepper falls 10 per cent, it would not be correct to attach equal weight to these changes and say that prices had remained unchanged; for very little money is spent on pepper, and the purchasing power of money would clearly be much more affected by the rise of wheat than by the fall in pepper. Commodities should, therefore, be weighted in proportion to the amount of money spent upon them. It is, however, found from comparisons that have been made of weighted and unweighted index numbers that in practice the latter give substantially accurate results over long periods of time, provided a sufficiently large number of articles are taken into account. Moreover, a rough system of weighting may be introduced by taking separate quotations for such things as wheat and flour, beef and mutton, pig-iron and steel rails; but only one for jute or tea. This rough weighting is done in the index numbers used in this book. For the purpose of our general review of prices, the index numbers of Jevons and Sauerbeck, continued by the *Statist*, have been used for the period before 1914, and the index of the *Economist* for the period since 1914. The Jevons and Sauerbeck indexes are not strictly comparable, for Jevons takes a smaller number of commodities than Sauerbeck, and takes the geometric instead of the arithmetic mean of the figures for the individual articles. But there is no other index number going back to the beginning of the century, and during the years covered by both Jevons and Sauerbeck the two index numbers show exactly similar changes in direction, the extent of the movements being about the same in most cases. The former covers the period from 1785 to 1865, but has been reproduced in the chart only from the period 1800 to 1860. From that date onwards Sauerbeck's index number, based at first upon 44 and later on 45 commodities, has been used, as the details on

which it is calculated are easily accessible. Sauerbeck's index number for the year 1900 has been taken as the basis for the first chart, preceding figures being recalculated to percentages of the 1900 figure. This gives 132 for 1860. Jevons's figure for 1860 (viz. 79) was then taken as equal to 132, and his series of figures recalculated so as to make them join Sauerbeck's at that date. We thus get an index number for the whole of the century, which is given in Table II and represented on the first chart at the end of the book.

The *Economist* index number is of the same general character. From the year 1924 it has been calculated on an improved basis, the chief alteration being that the final index number is now the geometrical average of the component items. In the tables and charts where the *Economist* index is used the figures have been adjusted to bring the indexes for 1924 on the old and new bases into agreement. The *Economist* index number is given for each month from July 1914 to December 1933 in Table IV.

Table III shows an analysis of Sauerbeck's index number under the two heads of food and raw material. It also shows the two other English index numbers, viz. those of the *Economist* and the Board of Trade. A fifth column gives the Bureau of Labour index number for the United States, while the sixth column shows two index numbers for Germany for the pre-war and post-war periods.

An examination of the two first columns shows that prices of raw materials fluctuate much more violently than food prices. This is not surprising, for the former are influenced by all the many variations of trade, by the state of credit, and by the psychology of the wholesale markets. The demand for food, on the other hand, is a much more definite and predetermined amount, and though supply used in the old days to vary very much in England from year to year according to the harvest, the supply of cereals and meat is now drawn from such a variety of climates, and produced by so many different methods of production, that the total now fluctuates much less from year to year. The same is true to a less extent of other articles of food.

The *Economist* and Board of Trade index numbers show slight differences from year to year, for whereas the former represents market prices on a given date and includes a comparatively small number of commodities, among which cotton plays rather large a part, the Board of Trade index number represents for the most

TABLE II
INDEX NUMBERS OF PRICES SINCE 1800
(The figures are those represented in the first diagram)

Year	Index Number.	Year.	Index Number	Year.	Index Number
1800	235	1846	123	1892	91
1801	233	1847	130	1893	91
1802	183	1848	113	1894	84
1803	208	1849	107	1895	83
1804	198	1850	107	1896	81
1805	220	1851	110	1897	83
1806	217	1852	108	1898	85
1807	215	1853	123	1899	91
1808	242	1854	138	1900	100
1809	262	1855	133	1901	93
1810	237	1856	137	1902	92
1811	227	1857	142	1903	92
1812	202	1858	127	1904	93
1813	192	1859	128	1905	96
1814	190	1860	132	1906	103
1815	182	1861	131	1907	107
1816	152	1862	135	1908	97
1817	195	1863	137	1909	99
1818	220	1864	140	1910	104
1819	187	1865	135	1911	107
1820	172	1866	136	1912	113
1821	157	1867	133	1913	113
1822	147	1868	132	1914	113
1823	148	1869	131	1915	144
1824	147	1870	128	1916	181
1825	172	1871	133	1917	232
1826	150	1872	145	1918	257
1827	150	1873	148	1919	275
1828	135	1874	136	1920	335
1829	132	1875	128	1921	207
1830	135	1876	127	1922	175
1831	137	1877	125	1923	172
1832	130	1878	116	1924	185
1833	125	1879	110	1925	181
1834	130	1880	117	1926	168
1835	133	1881	113	1927	163
1836	143	1882	112	1928	160
1837	140	1883	109	1929	153
1838	140	1884	101	1930	129
1839	153	1885	96	1931	109
1840	145	1886	92	1932	108
1841	142	1887	91	1933	106
1842	125	1888	93	1934	109
1843	118	1889	96	1935	112
1844	115	1890	96	1936	117
1845	123	1891	96	1937	137

TABLE III

	Food Prices (Sauer- beck). Average of 1867-77 = 100	Raw Materials (Sauer- beck). Average of 1867-77 = 100	<i>The Economist</i> Prices of 1st Jan. of each year. Average of 1845-50 = 100	Board of Trade Prices of 1900 = 100	United States (Bureau of Labour). Recalcu- lated to basis 1900 = 100.	Germany Schmitz to 1909 (1900 = 100) Official from 1924 (1913 = 100).
1860	98	100	123	..	111	112½
1861	97	99	125	..	111½	111
1862	94	101	131	..	127	114
1863	89	115	159	..	113½	116
1864	88	119	172	..	136	119
1865	91	108	164	.	111	111
1866	95	107	162	..	151	113½
1867	101	100	137	..	142	114½
1868	100	99	117	..	129	114
1869	94	100	122	.	125½	114
1870	93	99	122		130	111
1871	98	101	128	136 0	136½	117
1872	102	115	129	145.8	141	130
1873	107	114	134	152.7	135½	135
1874	104	100	131	148.1	132½	124
1875	100	93	126	141.4	126	116
1876	99	91	123	138 0	116	113
1877	101	89	123	141.6	116	113½
1878	96	81	116	132 6	111	104
1879	90	78	101	126.6	107	94½
1880	94	84	117	129.6	118½	105½
1881	91	80	108	127.3	117½	103
1882	89	80	111	128.4	120½	100
1883	89	77	106	126.8	118	98
1884	79	73	101	114.7	110	93½
1885	74	70	95	107.7	103	86½
1886	72	67	92	101 6	102	82
1887	70	67	94	99.6	103	84½
1888	72	69	102	102.7	104½	90
1889	75	70	99	104.0	104½	94½
1890	73	71	102	104.0	103	101
1891	77	68	101	107.4	102	98½
1892	73	65	97	101.8	96½	89
1893	72	65	96	100.0	96	86
1894	66	60	95	94.2	87	77½
1895	64	60	87	91.0	85	77
1896	62	60	91	88.2	82	77½
1897	65	59	89	90.1	81½	79½

TABLE III (continued)

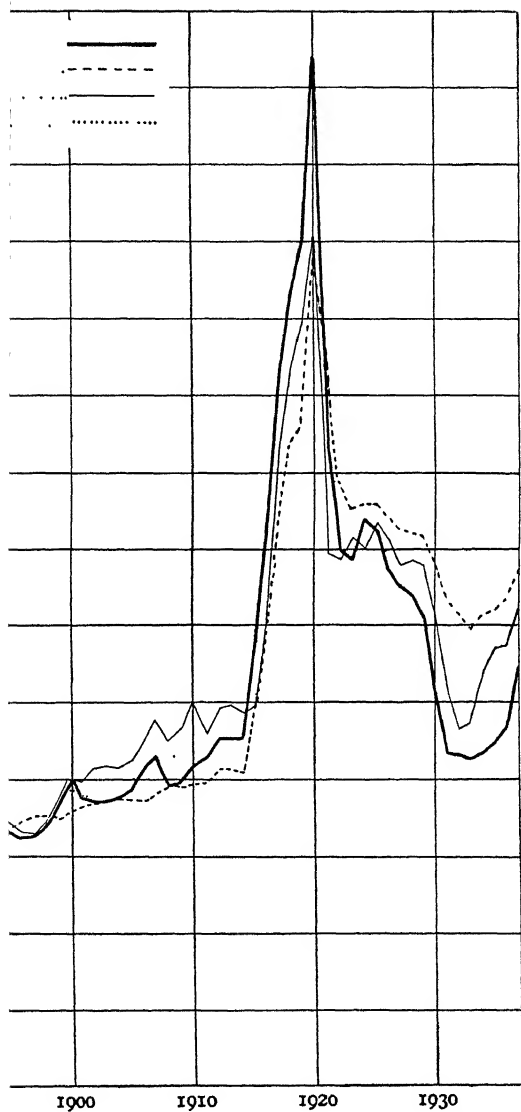
	Food Prices (Sauer- beck). Average of 1867-77 = 100	Raw Materials (Sauer- beck). Average of 1867-77 = 100.	<i>The Economist</i> Prices of 1st Jan. of each year Average of 1845-50 = 100	Board of Trade. Prices of 1900 = 100.	United States (Bureau of Labour) Recalcu- lated to basis 1900 = 100	Germany. Schmitz to 1909 (1900 = 100) Official from 1924 (1913 = 100)
1898	68	61	86	93.2	85	84½
1899	65	70	87	92.3	92½	92
1900	69	80	97½	100.0	100	100
1901	67	72	97	96.9	99	94
1902	67	71	89	96.5	103	93
1903	66	72	91	99.9	103½	94
1904	68	72	100	98.3	103	94
1905	69	75	97	97.6	105	97
1906	69	83	106	100.5	111	106
1907	72	86	114	105.7	118	113
1908	73	74	105	102.8	111½	106½
1909	73	75	100	104.1	115	105
1910	74	81	109	108.8	125	..
1911	75	83	108	109.4	115	.
1912	81	88	111	114.9	123	.
1913	77	91	119	116.5	124	.
1914	81	88	113	117.2	122	..
1915	170	108	142 ¹	143.9	124	..
1916	130	140	186 ¹	186.5	152	.
1917	169	179	235 ¹	243.0	209	..
1918	174	206	257 ¹	267.4	234	..
1919	185	222	268 ¹	296.3	248	..
1920	234	264	325 ¹	358.0	276	..
1921	158	153	201 ¹	229.7	174	..
1922	130	132	174 ¹	185.0	172	.
1923	122	134	175 ¹	185.1	179	.
1924	130	146	189 ¹	193.6	175	137.3
1925	128	143	183 ¹	185.3	184	141.8
1926	119	131	166 ¹	172.5	178	134.4
1927	114	129	165 ¹	165.0	170	137.6
1928	114	124	160 ¹	163.4	172	140.0
1929	110	119	151 ¹	159.0	170	137.2
1930	96	97	127 ¹	139.2	154	124.6
1931	83	82	106 ¹	122.2	130	110.9
1932	79	81	102 ¹	119.2	116	96.5
1933	74	83	102 ¹	119.4	118	93.3
1934	77	85	107 ¹	122.6	134	98.4
1935	76	90	112 ¹	123.8	143	101.8
1936	81	94	119 ¹	131.6	144	104.1
1937	93	109	135 ¹	151.4	154	105.9

¹ Average of year.

part average import or export values (as shown by the declared value of goods entering or leaving British ports), and includes a larger number of commodities. The comparison of these various index numbers shows (1) a general agreement as to the movement of wholesale prices over a period of years with unimportant differences in detail, according to the method of the calculation, and (2) that raw materials are more affected by changing conditions than food prices, and are therefore mainly responsible for the temporary ups-and-downs of the index number.

The American index number is based upon a much larger number of commodities than any of the preceding figures. The fluctuations are normally as large as those shown for England, while the extent and direction of the movement of prices shows some important differences; in particular, the extent of the upward movement of prices after 1896 appears to have been much greater than in this country. The same is true of Germany, but in this case the rise of prices in 1900 brought the index number so much above the level of the surrounding years that the curve as a whole lies below the other index number curves. The sharpness of the rise from 1896 is nevertheless very obvious from the diagram, in which these various indices are reproduced. The divergences of the curves in the war and post-war years are discussed in Chapters X and XI.

Retail price index numbers from 1850 onwards are given in Table I of Appendix E. The index for the years from 1850 to 1910 was compiled by Mr. G. H. Wood partly from statistics in the Board of Trade's Report on Wholesale and Retail Prices, and partly from data privately collected by Mr. Wood himself from Co-operative Society records. The basis for the figure is, however, comparatively slight, many of the figures being contract rather than genuine retail prices; hence too much reliance should not be placed on the details of the calculation, which is rather in the nature of an intelligent guess than an authoritative statement of the course of retail prices. From 1910 onwards the Cost of Living index number prepared by the Ministry of Labour is given. This index number is based upon the average expenditure of 1944 working-class families as ascertained by an official enquiry in 1904. It shows the varying cost of providing the same articles, and in the same proportions, as were consumed by these families in 1904, and it must therefore be applied with caution to the expendi-



To face page 240.

TABLE IV

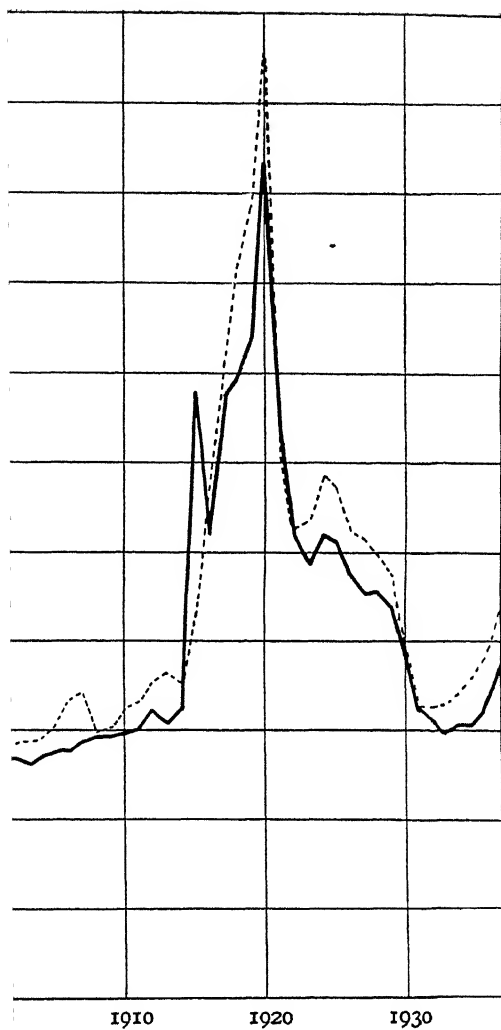
THE "ECONOMIST" INDEX NUMBER OF WHOLESALE PRICES
1913=100

Year.	Jan.	Feb.	March.	April.	May.	June	July	August.	Sept.	Oct.	Nov.	Dec.	Average.
1914	..	..	..	..	..	..	94	99	100	99½	99½	100½	..
1915	109	114	120	121	120½	117½	119	119½	120½	122	126	131	120
1916	138½	144½	144½	151½	156	152	151½	158	159½	165½	172½	177½	156
1917	179	183	191	194½	195½	205½	201½	204	203	206	208	209	198
1918	208½	203½	211	213½	216	219½	220	225	223½	223	223	218½	216
1919	209	207	203½	206	213½	228½	230½	232½	235½	243	250	263½	226
1920	278½	292½	299½	295½	294	280½	282	277	277½	255½	234	209½	273
1921	197	181	178	172	170½	167	166½	167½	171	158	153	149½	169
1922	146½	145½	146½	146½	143	150	150	145	142	144½	145½	144½	146
1923	146	149	148½	151	149½	144½	140½	140½	144	145	153	154½	147
1924	158½	160	168	166½	154	155	157½	159	160½	164	163	165	159
1925	163	163	158½	155	154	150½	154	153½	152½	149½	150	146½	154
1926	145	143	141	141½	140½	140½	143½	145	147	147½	145	139	140
1927	137	138½	137½	137	139½	138	138	139	137½	136½	137	136	138½
1928	135½	135½	137½	139½	140½	138½	136	133½	131½	131	131	130½	135
1929	130½	131½	132	129½	126	126	129	129	126½	124	121½	121½	127
1930	118½	116	114½	112½	111	108½	107	105	101	99½	97½	94½	107
1931	91	91	91	90	87½	87½	86	86	89½	90	90½	90½	89
1932	90	92	88½	86	83	81	82½	87	87½	85	85½	84	86
1933	84	82½	81½	84½	87½	89½	90	90	89½	88	87	88	86
1934	90½	90½	90	90	89½	89½	91	92½	90½	89½	89	91	90½
1935	91½	91½	91	92½	94½	93	93½	93½	96½	98	98	98	94½
1936	98	97½	98	97½	96	96	99½	100	101½	102½	106	109	100
1937	111½	113½	120	118	118½	116	116½	114½	112	109½	106	106	113½

ture of other classes, or of the same class at other times. The base of calculation is July 1914, and the quotations are collected from a large number of retailers in over 500 towns and villages through the officials of the Employment Exchanges. Both of these index numbers are no more than approximations to the movement of retail prices as a whole, but they have been joined together and reproduced on the chart facing page 240, together with the index number of wholesale prices. A comparison of these two lines shows that in many parts of the period the indices move together, but that there is a tendency for the wholesale curve to move more violently and to rise and fall to greater extremes. The high level of the wholesale curve in the 'sixties and early 'seventies is due to the high price of materials, and particularly of cotton, coal, and iron. The more violent movement of the wholesale curve is, in fact, mostly caused by the raw material quotations, as will be seen in a second chart on which the Sauerbeck-*Statist* sectional index numbers for food and material have been separately traced. The figures on which this diagram is based are given in the first two columns of Table III.

BIBLIOGRAPHICAL NOTE

The literature of this subject is voluminous, but a few special references may be given. On the theory and method of index numbers see the chapters on index numbers in Bowley's *Elements of Statistics* and the same author's *Elementary Manual of Statistics*. The former work treats the subject in a more mathematical manner than the latter. Professor Irving Fisher's *The Making of Index Numbers* is a wide and thorough survey of the subject, with an extended bibliography. Perhaps the best recent discussion is in Mr. J. M. Keynes' *Treatise on Money*, Book II, chaps. iv-viii. Professor Haberler's *Der Sinn der Indexzahlen* can also be recommended to those who read German. A paper by Mr. Hawtrey, entitled "Money and Index Numbers," in the *Journal of the Royal Statistical Society* for 1930 is also interesting on points of theory. From the descriptive and comparative point of view, a Special Memorandum of the London and Cambridge Economic Service entitled *Comparative price index numbers for eleven principal countries*, by A. L. Bowley and K. C. Smith (1927), is of particular interest. On cost-of-living index numbers see *Methods of compiling Cost of Living Index Numbers* published by the International Labour Office and a pamphlet called *The Cost of Living*



To face page 242.

Index Number issued by the Ministry of Labour in 1932. A paper on *The Measurement of Price Changes* read by Sir Alfred Flux to the Royal Statistical Society in 1933 is of interest in connection with the Board of Trade Index Number. For a history and summary of the *Economist* index number see the issues of that journal for August 19 and 26 and November 18, 1911, and for December 15, 1928; the figures of the index number are published in the *Economist* fortnightly. The late Mr. Sauerbeck made an annual report on his index number to the Royal Statistical Society, in whose *Journal* the figures can be found. Since Mr. Sauerbeck's death this annual report has been made by the Editor of the *Statist.* The Board of Trade wholesale price index is published in the *Board of Trade Journal* and the Ministry of Labour cost of living index in the *Ministry of Labour Gazette*. For international comparisons, the most convenient sources are the *Monthly Bulletin of Statistics* and the *Statistical Year-Book* published by the League of Nations. The *Survey of Current Business* published monthly by the United States Department of Commerce contains a great variety of American index numbers.

APPENDIX B

ON THE WORLD'S GOLD PRODUCTION

It is impossible to give in a short space anything like an adequate explanation of the technique of gold production, but, in order to show the present and future prospects of the world's gold supply, it is necessary to make a brief reference to some important features of the question.

Gold is found in a variety of forms, but we may make a broad distinction between two chief classes. On the one side are alluvial deposits caused by the action of water breaking up the original gold-bearing rocks, the gold being either left in an almost pure form mixed with sand in the beds of the rivers, or transformed into comparatively soft sandstone rock, as the result of pressure on this mixture of sand and gold. Among such alluvial deposits, known as "placers", comparatively large-sized nuggets of almost pure gold have occasionally been discovered, and the gold is always in a comparatively pure form. In the case of alluvial rock the method commonly employed is to disintegrate it by means of a very powerful stream of water. It is then treated in the same way as other alluvial deposits, *i.e.* after being broken up very finely it is washed in tanks of flowing water, which carries away the earthy matter and leaves the heavier gold at the bottom.

On the other hand, veins of gold-bearing rock are found either in the form of conglomerate, as in South Africa, or in the form of quartz-reefs, in which the gold may be quite invisible to the naked eye. Such rock needs to be treated with powerful machinery, the actual processes of mining being much the same as in the case of other minerals.

In early times attention was only paid to alluvial deposits, but as such forms are readily discovered, they are now only found on the outskirts of civilisation. The gold discoveries of the 'fifties, for example, occurred on the opening up of new countries, and such events can hardly be expected to recur now that almost every part

of the world is readily accessible. But such deposits are naturally exhausted very rapidly, and in 1880 some alarm was expressed at the diminution of the world's output, the falling-off having been hastened by the prohibition of the hydraulic method in California in 1884 on account of the devastation which it caused in agricultural districts. The countryside was being ruined by the large outflows of sand and mud washed down from the gold workings, and after a sharp tussle between the agricultural and gold-mining interests, the former carried the prohibition through the state legislature.

As early as 1886 Professor Lexis wrote that gold washings must be expected to contribute less and less to the yearly production, even though from time to time new deposits might be found. In his opinion, the most permanent supply of gold was to be expected from quartz mining, and he pointed out that already it was possible to use ores of low grade which formerly were not considered worth treating. On the other hand, it was pointed out by his critics that quartz mines were not at that time making a profit, and many were sceptical as to the possibility of ever obtaining a very large supply from such methods. But subsequent events have proved the truth of Professor Lexis' view. The enormous output of gold since 1896 is to be attributed, on the one hand, to the discovery of new areas of gold-bearing rock, and, on the other, to enormously improved and cheaper methods of extracting the gold. This change is shown by the following short table of proportions of gold produced from various kinds of rock:

	1848-75.	1890.	1904.	1929.
	per cent	per cent	per cent	per cent
Alluvia	90	45	18	8
Lodes	10	27	60	9
Sedimentary deposits (Transvaal conglomerates)	Nil.	8	22	53

The chief improvement in method has been the introduction of the prusso-cyanide process, by which minute quantities of gold are dissolved by potassium-cyanide, the gold being subsequently precipitated by chemical action or electrolysis. It is not too much to say that the present dominant position of the South African mines is the result of this discovery, though the process has also been successfully applied all over the world. Its importance lies in

the fact that ores containing very minute quantities of gold may be treated at a profit. Seeing that such forms of gold extraction are the chief source of our present supply, the question of the world's gold is seen to turn on the abundance of low-grade ore. Gold in minute quantities is to be found everywhere, but the existence of further large quantities of ore rich enough to repay mining is doubted by many experts. Mr. H. A. Kursell of the American Smelting and Refining Company, in a monograph printed in the Interim Report of the Gold Delegation of the Financial Committee of the League of Nations, wrote as follows: "With the possible exception of desert areas in Australia, Central Asia and around the Sudan, and the tropical areas at the head waters of the Amazon and Orinoco Rivers, which so far have been almost inaccessible because of the hostility of the native tribes and the nature of the climate, there are few portions of the earth's surface which have not been subjected to man's eager search for gold. When one reflects upon the long duration and intensive character of this search, one may quite properly conclude that the chances of discovery of new gold-mines of magnitude are very much less than is generally supposed, even by economists and other students who are apt to conclude that, because the last century has seen the discovery of one goldfield after another (California, Australia, the Rand, Klondyke, Lena, etc.), the process can and will go on indefinitely. The mining engineer knows that such is not the case, although it is still possible, even if not probable, that some important discovery may yet be made."

New fields are developed from time to time, those in Eastern Canada and West Africa being two of the more recent, but their production has not been sufficient materially to affect the total gold stock of the world. A rise in the price of gold relative to the costs of mining will also stimulate production by making it profitable to mine the lower grade ores, as happened in 1933 when the South African pound depreciated and the price of gold in South Africa consequently rose. Some slight improvement in technical efficiency can also be expected, though the field for progress here is not large, as the industry is already very efficient.

As regards statistics of production, the following table shows the world's output since the discovery of America, the estimates being those submitted by the late Mr. Joseph Kitchin to the Committee on Finance and Industry:

	Output	Percentage of Total.	Annual Average Output
	Million £	per cent	Million £
1493-1600 (107 years) .	103.2	2.4	0.97
1601-1700 (100 ") .	124.6	2.8	1.25
1701-1800 (100 ") .	259.9	5.9	2.60
1801-1850 (50 ") .	162.0	3.7	3.24
1851-1885 (35 ") .	858.9	19.5	24.54
1886-1900 (15 ") .	547.6	12.3	36.51
1901-1929 (29 ") .	2355.6	53.4	81.23
	4411.8	100 0	10.12

Of the total production of some £4400 millions it will be noticed that more than half has been produced in the present century. Not all of the increase is due to South Africa, since the cyanide process has had a considerable influence in other countries, as is shown in the following table compiled by Mr. Kitchin. The year 1884 is chosen for comparison, as it is the year of the smallest production since the Californian discoveries, while in the period 1856-60 the gold-workings in America and Australia were in full swing:

	1856-60. Annual Average	1884.	1909	1915.	1928
	Million £	Million £	Million £	Million £	Million £
U.S.A. . .	10.8	6.5	19.9	20.8	9.1
Australia . .	11.5	5.9	14.2	10.2	2.7
Russia . .	3.7	4.6	6.5	5.4	5.1
Transvaal . .	..	..	34.2	38.6	44.0
Other countries .	2.1	3.4	16.1	21.4	22.6
Total .	28.1	20.4	90.9	96.4	83.5

This table may be supplemented by that on the next page, also taken from Mr. Kitchin's evidence, of production in the most important countries, giving the year of discovery, the total output up to 1929, the record year's output, and the output in 1929.

It should not, of course, be assumed that all this gold is available for monetary use. Some has been lost by wear and tear and a great deal by use in the arts. At the end of 1929 the monetary gold reserves of the world (excluding China, India, and Egypt)

	Year of Discovery	Total Output to end 1929	Year's Record Output ¹	1929 Output.
		Million £	Million £	Million £
Russia . . .	1814	389	7.3 in 1910	5.0
United States . .	1848	931	20.8 „ 1915	9.1
Australia . . .	1851	720	18.4 „ 1903	2.5
Transvaal . . .	1888	1018	44.3 „ 1929	44.3
India . . .	1889	73	2.5 „ 1912	1.5
Mexico . . .	1894	152	5.1 „ 1910	2.5
Canada . . .	1896	147	8.1 „ 1929	8.1
Rhodesia . . .	1900	71	3.9 „ 1915	2.4
West Africa . .	1903	29	1.7 „ 1914	0.8
Rest of world .		3530		76.2
		882		7.3
Total (since 1493)		4412	99.4 in 1915	83.5

¹ Up to 1929 inclusive. Many of these figures were exceeded after 1931.

were estimated by Mr. Kitchin at £2100 millions. China, India, and Egypt absorb large quantities of gold for hoarding and adornment, and it is only occasionally that they sell back to the West any of their stocks. The following table gives Mr. Kitchin's estimates of the consumption of gold since 1835:

	1835-1889 (55 years).		1890-1929 (40 years).		Total 1835-1929 (95 years).		1920-1929 (last 10 years)	
	Million £	per cent	Million £	per cent	Million £	per cent	Million £	per cent
Industrial Arts . .	371	36	665	24	1036	27	162	21
India's absorption .	134	13	450	16	584	15	195	25
China's and Egypt's absorption . . .	18	1	72	2	90	2	..	..
Added to stock of monetary gold . .	514	50	1625	58	2139	56	415	54
World's output . .	1037	100	2812	100	3849	100	772	100

It will therefore be seen that only a little over half the output is available, on the average, for monetary uses. It was estimated in 1930 that the future production of gold would decline, an estimate of £76 millions in 1940, or about 9 per cent below the 1929 output, being given. There was no reason, however, to anticipate any reduction in the industrial or Oriental demand, and it was therefore believed that there might be a serious falling-off in the supply

for monetary purposes. This led the Gold Delegation of the League of Nations to recommend economy in the monetary use of gold and a reduction in the minimum reserve percentages prescribed by the currency laws of the different nations. These expectations have been to some extent falsified by the depreciation, since 1931, of most of the world's currencies (including those of all the important gold producers) and the consequent rise in the price of gold and in the profits of gold mining. This has not only stimulated the production of gold from lower-grade ores but has also set a higher monetary value upon the existing stocks of gold. It would be rash as yet to prophesy that these changes have converted a potential shortage of gold into an excess, as much will depend upon the extent to which the nations of the world continue to demand gold for monetary uses with the unanimity they have shown since the war, as well upon the exact rates at which the gold values of the currencies now fluctuating are eventually stabilised, if indeed they are to be stabilised.

A final table shows the world's production year by year since 1850, together with Soetbeer's ten-year averages for the first half of the century. These are the figures which are represented by the red line on Chart I :

WORLD'S PRODUCTION OF GOLD

Year.	Tons.	Year	Tons.
1801-10 (Annual Average)	17	1867	194
1811-20	11	1868	192
1821-30	14	1869	190
1831-40	20	1870	182
1841-50	54	1871	188
1851	134	1872	175
1852	219	1873	172
1853	231	1874	161
1854	200	1875	160
1855	209	1876	165
1856	218	1877	179
1857	209	1878	186
1858	206	1879	167
1859	204	1880	164
1860	192	1881	160
1861	185	1882	153
1862	182	1883	148
1863	182	1884	155
1864	182	1885	155
1865	195	1886	160
1866	200	1887	157

WORLD'S PRODUCTION OF GOLD—*continued*

Year.	Tons.	Year.	Tons.
1888	164	1913	700
1889	175	1914	679
1890	177	1915	704
1891	182	1916	686
1892	197	1917	626
1893	224	1918	572
1894	270	1919	533
1895	290	1920	494
1896	300	1921	490
1897	350	1922	476
1898	425	1923	551
1899	454	1924	572
1900	377	1925	573
1901	390	1926	590
1902	425	1927	587
1903	481	1928	594
1904	500	1929	600
1905	577	1930	639
1906	596	1931	625
1907	611	1932	678
1908	656	1933	707
1909	672	1934	756
1910	674	1935	824
1911	686	1936	921
1912	692	1937	990

BIBLIOGRAPHICAL NOTE

The technical aspects of the question are dealt with in De Launay's *The World's Gold* and in the article on gold in the *Encyclopaedia Britannica*. Del Mar's *History of the Precious Metals* contains an account of gold-mining from the earliest times, and deals with the demand for gold in the arts and with other problems connected with the gold-mining industry. An exhaustive collection and criticism of the facts dealing with the production of gold and silver from the earliest times is to be found in Soetbeer's *Materials for the Illustration and Criticism of the Economic Relations of the Precious Metals and the Currency Question*, which was published as an Appendix to the Final Report of the Gold and Silver Commission. Lehfeldt's *Gold Prices and the Witwatersrand* was written after the war and discussed the problem from the South African angle. The best summary of the post-war discussion is to be found in the publications of the Gold Delegation of the Financial Committee of the League of Nations, especially the *Interim Report* and a volume entitled *Selected Documents*. For statistics of production the Annual Report of the Director of the U.S. Mint is also valuable. A supplement to *The Times* on the subject of gold, reprinted in book form in 1933, contains many interesting articles.

APPENDIX C

ON MONETARY STATISTICS

THE volume of statistical material on monetary matters made available by public and other agencies has grown enormously in recent years. In the United States the statistics published by the Federal Reserve Board and by the Comptroller of the Currency are almost complete, and most of the series are now available for twenty years or longer. In Great Britain the available material is slowly increasing, but is still deficient in some respects. In France and Germany much less information is available, and in many cases the statistics do not cover the years of the war and of the post-war inflations. The following tables have been selected in order to illustrate the growth of the supply of money and the development of banking. No reliable estimates of the amount of gold coins in circulation in the pre-war period are available except for the United States, for France, and for the United Kingdom in the latter part of the period; but the figures which are given show that the gold in the hands of the American people increased far more rapidly than could possibly have been the case in any European country. Figures of bank deposits do not give an entirely accurate measure of the volume of purchasing power, since they include fixed deposits, deposit accounts, and similar funds which should be regarded as accumulated savings rather than as cash held for spending. Moreover, the figures of joint-stock bank deposits in Great Britain do not give a very exact indication of the actual growth of bank deposits, for they are swollen by the absorption of private banks into the great joint-stock corporations. Such additions to the totals do not, therefore, represent real additions to the banking of the country as a whole. In addition to the statistics of gold in circulation and of bank deposits, the gold reserves of the Central Banks are given, and in the case of the Bank of England the average annual minimum rate of discount has been added. Finally, a table is given showing the balance of imports or exports of gold coin and bullion during the periods for which statistics are available in the United Kingdom, United States, France, and Germany.

TABLE I

ESTIMATES OF GOLD CIRCULATION IN THE UNITED KINGDOM

	Total Circulation of Gold.	Per Caput.
1844	£46,000,000 (Newmarch's estimate) . . .	£1 13 5
1856	£75,000,000 (") . . .	2 13 0
1868	Under £80,000,000 (Jevons' estimate) . . .	2 12 3
1883	£110,000,000, a wide limit (Inghs Palgrave's estimate) . . .	3 1 9
1888 ¹	£102,500,000 (Royal Mint's estimate) . . .	2 14 9
1892	£90,000,000 (Chancellor of the Exchequer's estimate) . . .	2 7 3
1895 ¹	£92,500,000 (Royal Mint's estimate, £62,500,000 in active circulation, £30,000,000 in banks) . . .	2 7 1
1903	£100,000,000 (Royal Mint's estimate) . . .	2 7 2
1910	£113,000,000 (" " ") . . .	2 8 0
1920	Nil.	Nil.
1930	Nil.	Nil.

¹ These figures were obtained from the Thirty-fourth Annual Report of the Deputy Master and Comptroller of the Mint (1903), in which the following remarks were made: "The estimate by this department of the gold coin in active circulation in 1895 was arrived at by five distinct methods. It may be observed that the methods used in 1856, 1868, and 1888 would give maximum amounts, and the results of the reckoning of light gold coin show that the estimate of 1888 was too high, and that the estimate of 1895 was a closer approximation to the truth."

TABLE II

GROWTH OF PAPER CURRENCY IN THE UNITED KINGDOM
SINCE 1913

	Bank of England Notes	Currency Notes	Scottish Notes.	Irish Notes	Total.	Per Caput
	Million £	Million £	Million £	Million £	Million £	
1913	28 8	..	7 9	8 8	45 5	£0 19 11
1914	35 4	33 7	9 4	11 4	89 9	1 19 1
1915	33 6	88 6	12 3	15 6	150 1	3 7 9
1916	37 5	138 7	15 4	19 4	211 0	4 16 7
1917	42 9	192 7	19 1	23 1	278 8	6 8 9
1918	65 8	298 6	25 1	30 8	420 3	9 15 0
1919	84 4	342 6	28 2	30 5	485 7	10 17 10
1920	110 5	353 6	29 5	26 2	519 8	11 3 7
1921	105 3	315 4	25 6	19 7	466 0	9 17 11
1922	101 7	290 9	23 6	17 5	433 7	9 3 5
1923	102 7	285 2	22 5	17 1	427 5	8 19 10
1924	101 1	289 6	22 4	16 9	430 0	8 19 7
1925	86 8	293 3	21 6	15 9	417 6	8 14 11
1926	83 1	289 9	20 7	15 3	409 0	8 10 3
1927	80 3	296 4	21 3	14 9	412 9	8 10 10
1928	377 1	..	21 4	14 1	412 6	8 10 1
1929	362 1	..	21 4	17 0	400 5	8 4 8
1930	359 9	..	21 5	17 0	398 4	8 3 2
1931	358 5	..	21 3	16 4	396 2	8 1 7
1932	360 7	..	21 0	16 2	397 9	8 1 6
1933	371 2	..	21 0	16 8	409 0	8 6 0
1934	378 7	..	21 1	16 8	416 6	8 8 0
1935	394 7	..	21 7	17 5	433 9	8 14 7
1936	431 4	..	22 3	18 5	472 2	9 8 11
1937	479 6	..	23 1	19 5	522 2	10 8 2

TABLE III

DEPOSITS IN JOINT-STOCK BANKS IN THE UNITED KINGDOM
(000's omitted)

Date.	England and Wales.	Scotland.	Ireland.
1877	£133,258	£8,797	£17,204
1878	235,392	77,999 ¹	18,737
1879	235,996	68,583 ²	17,517
1880	242,290	75,585	17,167
1881	263,921	77,869	17,259
1882	279,165	79,444	23,135
1883	290,116	81,176	27,459
1884	313,854	83,249	26,124
1885	331,679	83,434	23,587
1886	329,328	81,523	33,301
1887	339,125	81,020	34,161
1888	352,070	82,404	35,183
1889	380,579	85,004	37,186
1890	390,752	89,076	39,071
1891	422,728	91,925	39,338
1892	435,345	92,520	40,316
1893	432,670	92,413	40,539
1894	445,158	92,091	41,670
1895	485,277	93,489	43,613
1896	564,538	94,338	45,566
1897	565,006	95,882	45,580
1898	596,794	96,617	46,083
1899	624,715	99,139	46,943
1900	620,169	103,674	47,726
1901	634,346	107,347	48,428
1902	641,294	107,136	48,845
1903	645,115	104,437	50,439
1904	642,236	103,815	52,271
1905	672,329	101,538	53,493
1906	683,733	101,062	53,959
1907	713,263	105,232	55,984
1908	712,282	108,718	58,306
1909	835,040 ³	106,736	60,463
1910	720,637 ³	106,652	62,508
1911	748,641 ³	112,209	65,465
1912	773,974 ³	113,795	66,901
1913	809,352 ³	125,847	70,657
1914	895,561 ³	132,504	74,501
1915	992,555 ³	140,569	77,722
1916	1,154,877 ³	166,620	83,746
1917	1,365,297 ³	196,538	99,310
1918	1,533,412 ³	222,055	131,610
1919	1,874,184 ³	259,610	166,231
1920	1,961,527 ³	279,228	200,441
1921	1,974,898 ³	291,060	212,860
1922	1,833,971 ³	267,791	209,777
1923	1,822,067 ³	247,227	51,962 ⁴
1924	1,813,513 ³	242,572	51,100 ⁴
1925	1,806,810 ³	240,945	50,057 ⁴
1926	1,848,174 ³	238,821	50,843 ⁴
1927	1,892,948 ³	241,966	49,342 ⁴
1928	1,951,478 ³	248,800	49,649 ⁴
1929	1,911,007 ³	250,853	49,470 ⁴
1930	1,976,805 ³	256,084	49,098 ⁴
1931	1,820,987 ³	243,568	49,075 ⁴
1932	2,064,335 ³	276,464	53,867 ⁴
1933	2,025,231 ³	281,678	51,160 ⁴
1934	2,061,910 ³	286,688	50,534 ⁴
1935	2,172,713 ³	308,499	50,910 ⁴
1936	2,329,108 ³	317,313	49,858 ⁴
1937	2,348,199 ³	330,455	49,094 ⁴

¹ Including City of Glasgow, £8,000,000; and Caledonian Bank, £1,000,000.² Including Caledonian Bank.³ Excluding Bank of England.⁴ Northern Ireland only.

TABLE IV

DEPOSITS OF PRIVATE BANKS IN THE UNITED KINGDOM
(000's omitted)

1892 . . .	£70,899	1915 . . .	£32,890
1893 . . .	66,440	1916 . . .	39,183
1894 . . .	63,908	1917 . . .	44,697
1895 . . .	69,170	1918 . . .	51,271
1896 . . .	47,298	1919 . . .	56,246
1897 . . .	48,798	1920 . . .	50,865
1898 . . .	39,984	1921 . . .	48,307
1899 . . .	41,410	1922 . . .	50,956
1900 . . .	42,102	1923 . . .	33,485
1901 . . .	39,544	1924 . . .	29,151
1902 . . .	34,556	1925 . . .	27,781
1903 . . .	31,025	1926 . . .	29,929
1904 . . .	28,342	1927 . . .	30,367
1905 . . .	26,610	1928 . . .	31,004
1906 . . .	27,417	1929 . . .	29,183
1907 . . .	27,426	1930 . . .	26,790
1908 . . .	26,842	1931 . . .	22,246
1909 . . .	25,690	1932 . . .	14,907
1910 . . .	26,808	1933 . . .	16,452
1911 . . .	27,099	1934 . . .	8,132
1912 . . .	26,753	1935 . . .	9,205
1913 . . .	27,089	1936 . . .	10,232
1914 . . .	32,874	1937 . . .	8,730

TABLE V

GOLD HOLDINGS OF THE BANK OF ENGLAND, AND BANK RATE

Date.	Total Coin and Bullion	Average Rate of Discount.	Date.	Total Coin and Bullion.	Average Rate of Discount
Dec			Dec.		
1844	£14,664,000	£2 10 0	1891	£24,363,000	£3 5 2
1845	15,243,000	2 13 8	1892	25,519,000	2 10 7
1846	14,785,000	3 6 6	1893	26,425,000	3 1 0
1847	10,428,000	5 3 6	1894	34,309,000	2 2 3
1848	13,872,000	3 14 5	1895	38,951,000	2 0 0
1849	15,161,000	2 18 7	1896	44,334,000	2 9 8
1850	16,636,000	2 10 1	1897	35,571,000	2 12 8
1851	14,564,000	3 0 0	1898	33,561,000	3 4 10
1852	20,587,000	2 3 0	1899	32,268,000	3 15 0
1853	17,516,000	3 13 10	1900	33,321,000	3 19 6
1854	13,977,000	5 2 3	1901	35,830,000	3 14 4
1855	14,181,000	4 17 10	1902	35,644,000	3 6 7
1856	10,932,000	6 1 2	1903	34,415,000	3 15 0
1857	10,118,000	6 13 3	1904	34,412,000	3 6 1
1858	17,847,000	3 4 7	1905	35,668,000	3 0 1
1859	17,928,000	2 14 7	1906	33,942,000	4 5 3
1860	15,239,000	4 3 7	1907	34,917,000	4 18 5
1861	13,009,000	5 5 4	1908	32,724,000	3 0 4
1862	16,380,000	2 10 7	1909	37,414,000	3 2 0
1863	14,567,000	4 8 2	1910	31,355,545	3 14 5
1864	13,482,000	7 8 0	1911	32,438,162	3 9 4
1865	14,546,000	4 15 4	1912	31,300,487	3 15 5
1866	14,887,000	6 19 0	1913	34,983,149	4 15 5
1867	21,353,000	2 10 9	1914	69,493,610	4 0 9
1868	20,338,000	2 1 11	1915	51,476,407	5 0 0
1869	13,825,000	3 4 2	1916	54,304,915	5 9 3
1870	20,776,000	3 2 0	1917	58,337,469	5 3 0
1871	23,588,000	2 17 8	1918	79,110,764	5 0 0
1872	22,585,000	4 2 0	1919	91,342,155	5 3 0
1873	22,665,000	4 15 10	1920	128,267,670	6 14 4
1874	22,294,000	3 13 10	1921	128,434,359	6 2 4
1875	23,923,000	3 4 8	1922	127,443,007	3 13 9
1876	28,695,000	2 12 1	1923	128,019,382	3 9 9
1877	25,374,000	2 18 0	1924	128,560,002	4 0 0
1878	23,952,000	3 15 8	1925	144,556,367	4 11 0
1879	32,452,000	2 10 4	1926	151,118,648	5 0 0
1880	27,636,000	2 15 4	1927	152,408,849	4 13 0
1881	24,580,000	3 10 0	1928	159,306,490	4 10 0
1882	21,992,000	4 2 8	1929	150,548,712	5 10 0
1883	22,227,000	3 11 4	1930	152,640,787	3 8 5
1884	22,907,000	2 19 1	1931	125,401,728	3 18 7
1885	24,173,000	2 17 7	1932	124,309,107	3 0 2
1886	21,018,000	3 1 0	1933	195,228,035	2 0 0
1887	21,779,000	3 7 0	1934	195,234,129	2 0 0
1888	20,770,000	3 5 11	1935	201,914,149	2 0 0
1889	21,410,000	3 10 11	1936	314,223,879	2 0 0
1890	21,818,000	4 10 5	1937	326,406,625	2 0 0

TABLE VI
VARIOUS CLASSES OF MONEY IN U.S.A. SINCE 1880
(Millions of Dollars)

	Gold Coin, Bullion and Certificates	Silver Coin, Bullion and Certificates	U.S. Notes and Treasury Notes.	Federal Reserve Notes	National Bank Notes.	Total. ¹	Money in Treasury and Federal Reserve Banks	Total Money in Circulation.
1880	351.8	142.4	346.7	.	344.5	1,185.6	212.2	973.4
1881	478.5	169.3	346.7	..	355.0	1,349.6	235.4	1114.2
1882	506.8	197.2	346.7	..	358.7	1,409.4	235.1	1174.3
1883	542.7	227.0	346.7	..	356.1	1,472.5	242.2	1230.3
1884	545.5	255.6	346.7	..	339.5	1,487.3	243.4	1243.9
1885	588.7	283.4	346.7	..	318.6	1,537.4	244.8	1292.6
1886	590.8	202.2	346.7	..	311.7	1,561.4	308.7	1252.7
1887	664.5	353.0	346.7	..	279.2	1,633.4	315.9	1317.5
1888	705.8	386.6	346.7	..	252.4	1,691.4	319.2	1372.2
1889	680.1	420.5	346.7	..	211.4	1,658.7	278.3	1380.4
1890	695.6	456.8	346.7	..	186.0	1,685.1	255.8	1429.3
1891	646.6	516.5	346.7	..	167.9	1,677.8	180.4	1497.4
1892	664.3	558.6	346.7	..	172.7	1,752.2	150.9	1601.3
1893	597.7	615.7	346.7	..	178.7	1,738.8	142.1	1596.7
1894	627.3	624.3	346.7	..	206.9	1,805.1	144.3	1660.8
1895	636.3	624.7	346.7	..	211.7	1,819.4	217.4	1602.0
1896	599.6	627.7	346.7	..	226.0	1,800.1	293.7	1506.4
1897	696.2	632.4	346.7	..	231.4	1,906.8	265.8	1641.0
1898	861.5	637.4	346.7	..	227.9	2,073.6	235.7	1837.9
1899	963.5	638.5	346.7	..	241.4	2,190.1	286.0	1904.1
1900	1,034.4	647.0	346.7	..	309.6	2,336.2	255.0	2081.2
1901	1,124.6	658.0	346.7	..	353.7	2,511.5	308.3	2203.2
1902	1,192.6	667.3	346.7	..	356.7	2,593.9	314.8	2279.1
1903	1,248.7	675.6	346.7	..	413.7	2,717.6	317.9	2399.7
1904	1,327.7	679.9	346.7	..	449.2	2,838.0	285.1	2553.9

1905	1,357.7	683.0	346.7	..	495.7	2,919.5	296.2	2623.3
1906	1,475.7	686.5	346.7	..	561.1	3,109.4	334.7	2774.7
1907	1,466.4	698.7	346.7	..	603.8	3,138.1	344.2	2813.9
1908	1,618.1	715.6	346.7	..	689.3	3,423.1	343.9	3079.2
1909	1,642.0	727.6	346.7	..	689.9	3,451.5	302.7	3148.8
1910	1,636.0	723.4	346.7	..	713.4	3,466.9	318.2	3148.7
1911	1,753.2	727.9	346.7	..	728.2	3,607.0	343.9	3263.1
1912	1,818.2	738.8	346.7	..	745.1	3,702.0	366.8	3335.2
1913	1,870.8	743.4	346.7	..	759.2	3,777.0	358.3	3418.7
1914	1,890.7	750.3	346.7	..	750.7	3,797.8	338.4	3459.4
1915	1,985.5	753.7	346.7	84.3	819.3	4,050.8	731.2	3319.6
1916	2,444.7	757.1	346.7	185.2	744.2	4,541.7	892.4	3649.3
1917	3,290.2	766.5	346.7	560.2	715.4	5,678.8	1,612.4	4086.4
1918	3,162.8	731.4	346.7	1863.0	724.2	6,906.2	2,424.5	4481.7
1919	3,113.3	551.0	346.7	2875.2	719.3	7,688.4	2,811.8	4876.6
1920	2,865.5	527.7	346.7	3607.1	719.0	8,158.5	2,690.9	5467.6
1921	3,274.7	560.1	346.7	3151.2	743.3	8,174.5	3,263.5	4911.0
1922	3,784.7	632.4	346.7	2635.6	758.2	8,276.1	3,812.9	4463.2
1923	4,049.6	761.0	346.7	2699.0	747.4	8,846.5	3,979.5	4823.3
1924	4,488.4	781.3	346.7	2349.6	778.0	8,846.5	3,997.2	4849.3
1925	4,364.6	805.5	346.7	1949.4	733.4	8,303.6	3,488.4	4815.2
1926	4,447.4	822.4	346.7	2000.9	702.7	8,429.0	3,543.7	4885.3
1927	4,587.3	833.5	346.7	2082.3	704.1	8,667.3	3,816.0	4851.3
1928	4,109.2	839.0	346.7	2007.0	699.6	8,118.1	3,321.5	4796.6
1929	4,324.4	844.1	346.7	2198.7	704.3	8,538.8	3,792.5	4746.3
1930	4,534.9	850.9	346.7	1749.8	698.3	8,306.6	4,184.6	4522.0
1931	4,955.9	848.5	346.7	2104.5	697.0	9,079.6	4,257.7	4821.9
1932	3,918.6	844.8	346.7	3031.1	736.7	9,004.5	3,309.3	5695.2
1933	4,317.6	838.6	346.7	3478.2	970.6	10,078.4	4,357.6	5720.8
1934	7,866.2	837.5	346.7	3511.7	954.7	13,634.4	8,260.9	5373.5
1935	9,115.6	1171.5	346.7	3577.2	769.1	15,113.0	9,545.9	5567.1
1936	10,608.4	1587.0	346.7	4349.6	371.7	17,402.5	11,161.3	6241.2
1937	12,318.3	1741.2	346.7	4547.4	272.2	19,376.7	12,929.6	6447.1

¹ Including minor coins.

TABLE VII
GOLD STOCK OF THE UNITED STATES FROM 1914
(Millions of dollars)

		Total Gold Stock	Gold Coin and Certificates in Circulation.
June 30, 1914	.	1,890 7	1637.6
" 1915	.	1,985.5	1409 4
" 1916	.	2,444 7	1675.2
" 1917	.	3,220.2	1749.4
" 1918	.	3,162.8	1048.4
" 1919	.	3,113.3	782.5
" 1920	.	2,865.5	733.8
" 1921	.	3,274.7	647.9
" 1922	.	3,784.7	589.2
" 1923	.	4,049.6	790 7
" 1924	.	4,488.4	1194.7
" 1925	.	4,364.6	1407.1
" 1926	.	4,447.4	1449.1
" 1927	.	4,587 3	1392.1
" 1928	.	4,109.2	139.61
" 1929	.	4,324.4	1303 5
" 1930	.	4,534.9	1352 0
" 1931	.	4,955.9	1359.5
" 1932	.	3,918.6	1071.0
" 1933	.	4,317.6	586.4
" 1934	.	7,856.2	149.7
" 1935	.	9,115 6	117.2
" 1936	.	10,608.4	100.8
" 1937	.	12,318 3	88.1

TABLE VIII
DEPOSITS IN VARIOUS BANKS IN THE UNITED STATES
SINCE 1880
(Millions of dollars)

	National Banks.	State Banks.	Loan and Trust Companies.	Private Banks.
June 30, 1880	833 7	208 8	90.0	182 7
" 1881	1,031 7	261 4	111.7	241 8
" 1882	1,066 7	281 8	144 8	295 6
" 1883	1,043 1	335 0	165.4	1
" 1884	979 0	325 4	188.7	.. 1
" 1885	1,106 4	344 3	188.4	.. 1
" 1886	1,146 2	342 9	214.1	.. 1
" 1887	1,285 1	448 0	240.2	96 6
" 1888	1,292 3	410 0	257.9	94 9
" 1889	1,442 1	507 1	299 6	83 2
" 1890	1,521 7	553 1	336.5	90 7
" 1891	1,535.1	556 6	355 3	95 0
" 1892	1,753 3	648 5	411 7	93.1
" 1893	1,556 8	706 9	486 2	68 6
" 1894	1,667 8	658 1	471 3	66 1
" 1895	1,736 0	712 4	546 7	81 8
" 1896	1,668 4	695 7	586 5	59 1
" 1897	1,770 5	723 6	566 9	50 3
" 1898	2,023 4	912 4	662 1	62 1
" 1899	2,522 2	1,164 0	835 5	65 0
" 1900	2,458 1	1,266 7	1,028 2	96 2
" 1901	2,941 8	1,610 5	1,271 1	118 6
" 1902	3,098 9	1,698 2	1,525 5	131 7
" 1903	3,201 0	1,814 6	1,589 4	133 2
" 1904	3,312 4	2,073 2	1,600 3	95 8
" 1905	3,783 7	2,365 2	1,980 9	127.9
" 1906	4,055 9	2,741 5	2,008 9	109 9
" 1907	4,322 9	3,068 7	2,061.6	151 1
" 1908	4,874 6	2,937 1	1,867 0	128 7
" 1909	4,898 6	2,467 0	2,835 8	138 3
" 1910	5,287 2	2,727 9	3,073 1	124 6
" 1911	5,478 0	2,777 6	3,295 9	142.3
" 1912	5,825 5	2,920 0	3,674.6	152 5
" 1913	5,953 5	3,081 0	3,571 4	143 5
" 1914	6,268 7	3,226.8	3,939 8	145 8
" 1915	6,520 9	3,277 8	4,204 6	134 4
" 1916	8,043 6	4,296 3	5,198 5	146.8
" 1917	9,521 6	5,390 8	5,797 3	161.9
" 1918	10,058 4	6,114 2	5,970 9	193.4
" 1919	12,253 1	8,999 1	5,693 7	216.6
" 1920	14,018 8	10,873 0	6,085 7	169.6
" 1921	12,673 6	10,790 7	5,720 5	133 9
" 1922	13,196.5	10,093 5	6,484.4	144 9
" 1923	13,964.1	11,118 1	6,822 5	131.4
" 1924	14,818 8	11,785.4	7,779 2	120 5
" 1925	16,320.7	12,672 8	8,530 4	126.2
" 1926	17,057.1	13,145 8	8,893 4	131.2
" 1927	18,202 8	12,923 7	10,074 2	123.2
" 1928	19,300 4	12,725 1	10,874 5	110 6
" 1929	18,821 4	12,816 5	10,959.5	107 2
" 1930	19,678 8	11,628 8	11,688 9	79.8
" 1931	18,685 5	9,862 0	10,663 6	59.1
" 1932	17,460 9	17,849 7		40.7
" 1933	16,774 1	15,013 3		32.8
" 1934	19,932.7	16,544 6		367.7
" 1935	22,518 2	18,636 5		511.5
" 1936	26,200 5	21,480 3		583 1

¹ Figures not available.

TABLE IX
GOLD HOLDINGS OF AND CREDIT PROVIDED BY THE FEDERAL
RESERVE BANKS FROM 1920
(Millions of dollars)

	Gold Reserves	Total Federal Reserve Credit Outstanding
December 31, 1920 . .	2059.5	3323.5
„ 1921 . .	2869.6	1535.9
„ 1922 . .	3047.4	1448.7
„ 1923 . .	3080.0	1238.9
„ 1924 . .	2936.5	1302.3
„ 1925 . .	2701.3	1459.2
„ 1926 . .	2818.5	1381.0
„ 1927 . .	2733.2	1654.5
„ 1928 . .	2584.2	1808.7
„ 1929 . .	2857.1	1581.9
„ 1930 . .	2941.2	1373.3
„ 1931 . .	2988.9	1853.4
„ 1932 . .	3150.7	2144.9
„ 1933 . .	3569.0	2688.1
„ 1934 . .	5124.3	2462.9
„ 1935 . .	7553.4	2485.6
„ 1936 . .	8851.9	2500.2
„ 1937 . .	9119.9	2612.1

TABLE X

GOLD HOLDINGS OF THE BANK OF FRANCE AND THE
REICHSBANK

	Bank of France In Million £ (gold)	Reichsbank In Million £ (gold)
December 1878 . . .	37.9	9.8
„ 1879 . . .	28.5	10.4
„ 1880 . . .	27.9	10.7
„ 1881 . . .	23.3	9.8
„ 1882 . . .	35.2	9.9
„ 1883 . . .	37.8	13.4
„ 1884 . . .	39.3	13.3
„ 1885 . . .	42.4	13.1
„ 1886 . . .	50.3	18.3
„ 1887 . . .	45.7	22.4
„ 1888 . . .	41.9	28.9
„ 1889 . . .	44.5	27.8
„ 1890 . . .	48.4	24.7
„ 1891 . . .	54.2	28.0
„ 1892 . . .	59.9	29.3
„ 1893 . . .	59.9	25.0
„ 1894 . . .	65.0	29.4
„ 1895 . . .	70.4	33.5
„ 1896 . . .	78.3	28.6
„ 1897 . . .	76.2	28.1
„ 1898 . . .	75.7	27.7
„ 1899 . . .	72.2	27.2
„ 1900 . . .	71.9	27.1
„ 1901 . . .	81.3	31.6
„ 1902 . . .	93.0	34.5
„ 1903 . . .	95.9	30.9
„ 1904 . . .	99.1	32.4
„ 1905 . . .	110.1	35.4
„ 1906 . . .	111.0	32.1
„ 1907 . . .	104.1	30.1
„ 1908 . . .	117.8	37.3
„ 1909 . . .	141.3	38.6
„ 1910 . . .	136.0	38.9
„ 1911 . . .	128.2	41.4
„ 1912 . . .	129.6	44.0
„ 1913 . . .	140.3	58.5
„ 1924 . . .	..	35.1
„ 1925 . . .	..	59.1
„ 1926 . . .	..	88.4
„ 1927 . . .	..	91.3
„ 1928 . . .	257.5	133.5
„ 1929 . . .	341.7	111.3
„ 1930 . . .	431.4	108.5
„ 1931 . . .	551.4 ¹	48.2 ¹
„ 1932 . . .	669.5 ¹	40.3 ¹
„ 1933 . . .	621.8 ¹	19.3 ¹
„ 1934 . . .	661.5 ¹	3.9 ¹
„ 1935 . . .	533.8 ¹	4.0 ¹
„ 1936 . . .	363.8 ¹	3.3 ¹
„ 1937 . . .	311.4 ¹	3.4 ¹

¹ Valued at the legal gold parity of the £.

TABLE XI

NET IMPORTS AND EXPORTS OF GOLD COIN AND BULLION IN £
(000's omitted)

+ = Balance of Imports.

- = Balance of Exports.

Date	United Kingdom.	U.S A	Germany	France.
	£	£	£	£
1858	+ 10,226			
1859	+ 4,216			
1860	- 3,056			
1861	+ 925			
1862	+ 3,891			
1863	+ 3,839			
1864	+ 3,621			
1865	+ 5,992			
1866	+ 10,767			
1867	+ 7,911	- 9,300		
1868	+ 4,427	- 10,262		
1869	+ 5,297	- 3,625		
1870	+ 8,973	- 8,535		
1871	+ 920	- 7,815		
1872	- 1,279	- 11,492		
1873	+ 1,539	- 992		
1874	+ 7,439	- 7,144		
1875	+ 4,492	- 7,813		
1876	+ 6,960	- 1,511		
1877	- 4,919	- 1,470		
1878	+ 5,902	+ 364		
1879	- 4,210	+ 14,930		
1880	- 2,373	+ 14,116	- 440	
1881	- 5,535	+ 11,559	- 1,580	
1882	+ 2,352	- 5,064	- 530	
1883	+ 664	+ 3,201	- 660	
1884	- 1,268	- 2,598	- 605	
1885	+ 1,445	+ 2,445	+ 900	
1886	- 391	+ 5	+ 1,320	
1887	+ 631	+ 7,149	+ 2,045	
1888	+ 846	- 4,715	+ 1,855	
1889	+ 3,230	- 7,786	+ 690	
1890	+ 9,261	- 766	+ 3,015	- 5,324
1891	+ 6,047	- 6,823	+ 4,970	+ 5,080
1892	+ 6,638	- 11,816	+ 1,435	+ 11,056
1893	+ 4,670	- 1,384	+ 1,925	+ 7,544
1894	+ 11,924	- 16,126	+ 12,560	+ 14,156
1895	+ 14,636	- 14,114	+ 755	+ 376
1896	- 5,637	+ 9,295	+ 1,135	- 400
1897	..	- 51	+ 1,800	+ 6,352

TABLE XI (*continued*)
NET IMPORTS AND EXPORTS OF GOLD COIN AND BULLION IN £
(000's omitted)

+ = Balance of Imports.

- = Balance of Exports.

Date	United Kingdom.	U S A	Germany	France.
	£	£	£	£
1898	+ 7,132	+ 28,394	+ 5,225	- 4,552
1899	+ 10,997	+ 1,191	+ 6,780	+ 6,272
1900	+ 7,793	+ 2,523	+ 6,370	+ 5,340
1901	+ 6,750	- 604	+ 10,260	+ 11,356
1902	+ 6,219	+ 1,632	+ 1,645	+ 12,536
1903	+ 890	+ 4,184	+ 9,455	+ 7,372
1904	+ 837	- 7,282	+ 19,440	+ 21,348
1905	+ 7,738	+ 699	+ 8,980	+ 25,924
1906	+ 3,425	+ 21,774	+ 13,430	+ 10,816
1907	+ 6,222	+ 17,636	- 850	+ 11,592
1908	- 3,835	- 6,188	+ 15,410	+ 39,764
1909	+ 7,442	- 17,759	+ 1,430	+ 7,281
1910	+ 6,423	- 15,045	+ 9,110	+ 2,316
1911	+ 8,593	+ 10,219	+ 6,234	+ 5,004
1912	+ 6,150	- 1,678	+ 8,335	+ 8,786
1913	+ 13,446	- 1,713	..	..
1914	+ 28,043	- 9,099	..	..
1915	- 28,390	+ 5,078	..	..
1916	- 20,659	+ 80,752	..	..
1917	..	+ 137,051	..	..
1918	..	+ 4,220	..	..
1919	..	- 58,330	..	..
1920	- 41,887	+ 19,542	..	..
1921	- 9,672	+ 137,316	..	..
1922	- 10,296	+ 49,019	..	..
1923	- 13,447	+ 60,509	..	..
1924	- 13,628	+ 53,102	..	..
1925	- 8,214	- 27,647	..	..
1926	+ 11,419	+ 20,123	+ 27,679	+ 500 ¹
1927	+ 3,345	+ 1,251	+ 9,038	- 4,400 ¹
1928	- 12,723	- 80,630	+ 44,464	+ 56,900 ¹
1929	- 15,152	- 36,022	- 21,889	+ 69,300
1930	+ 4,862	+ 57,633	- 3,280	+ 94,500
1931 ²	- 34,581	+ 29,903	- 50,950	+ 149,500
1932 ²	+ 17,870	- 89,243	- 5,726	+ 170,357
1933 ²	+ 139,200	- 35,620	- 21,140	+ 50,900
1934 ²	+ 86,950	+ 137,500	- 11,500	- 49,680
1935 ²	+ 44,950	+ 211,200	+ 5,220	- 99,400
1936 ²	+ 142,100	+ 135,700	+ 486	.. ³
1937 ²	+ 51,010	+ 192,600	- 490	.. ³

¹ Estimated.

² Valued at the legal gold parity of the £.
³ Figures not available.

BIBLIOGRAPHICAL NOTE

The sources for and discussions of monetary statistics are without number and only a few of the more important publications can be mentioned here. Much information on the Bank of England and the British joint-stock banks will be found in the Banking Supplements of *The Economist*, published in May and October each year. For more recent years the *Statistical Summary* published by the Bank of England brings together all the relevant figures in very convenient form. Very full American statistics are to be found in the monthly *Federal Reserve Bulletin* and in the Annual Reports of the Federal Reserve Board and of the Comptroller of the Currency. For other countries the most useful sources are the *Monthly Bulletin of Statistics* and the *Statistical Year-Book* published by the League of Nations supplemented by two series of Memoranda on *Currency and Central Banks*, and on *Commercial Banks*.

APPENDIX D

STATISTICS OF PRODUCTION

It is difficult to estimate with anything like accuracy the number of business transactions taking place in the world, or even in a single country, for estimation is almost impossible in regard to personal services or to the number of times that goods change hands in passing from producer to consumer. Even so far as material goods are concerned, statistics of production are only obtainable for the pre-war period in regard to a very limited number of the leading raw materials and agricultural products. Such figures have considerable importance in regard to special industries, but we cannot argue that the rate of increase of such commodities is any indication of the production of other goods. Nor, on the other hand, do we know, even in respect to these commodities themselves, how much industry and commerce may be based upon them; that is to say, we neither know how many times they change hands before reaching the ultimate consumer, nor how many different manufacturing processes may be employed upon them before they reach the ultimate consumer. The case of coal may serve as a simple example. The improvement in science which leads to a greater power being extracted from a given quantity of coal will produce a change in the proportion of goods which may be manufactured by the energy it produces, but such a change will not be indicated by the figures of production of raw coal. Similarly, the spinning of finer cotton yarns in Lancashire means that statistics of raw cotton consumption do not give an exact picture of the amount of productive work done by the cotton industry. Since the war, statistics of industrial production have been more plentiful and a combined index of the volume of production is now compiled for most countries of the world. But these data are available for a brief period only. The tables which are given below, however, may serve to show that the world's production of materials and food products has, on the whole, shown a continuous increase, apart from the interruption of the war.

Table I is based on the annual estimate in Dornbusch's *Floating*

Cargo List. Table II is from the volume of American statistics published by the National Monetary Commission of the United States. Tables III, IV, V, VI, and VII are from the third series of statistical tables on British and foreign industry (1909) published by the Board of Trade. These tables have been continued, for the post-war years, from various sources. Two tables have been added dealing entirely with those years. Table VIII gives the index of the world production of primary commodities calculated by the League of Nations. Table IX shows the Index of Production calculated for Great Britain by the Board of Trade and also *The Economist* Index of Business Activity, which includes indications of activity in commerce and in fields of industry not concerned with production in the narrower sense of the term. In comparing these two indices it should be noticed that the latter is, but the former is not, adjusted to eliminate normal seasonal fluctuations.

TABLE I
WORLD'S WHEAT PRODUCTION

	Million Quarters.		Million Quarters.
1888	283	1912	475
1889	273	1913	503
1890	288	1914	446
1891	309	1915	532
1892	314	1916	411
1893	319	1917	405
1894	327	1918	458
1895	305	1919	403
1896	298	1920	362 ¹
1897	286	1921	388 ¹
1898	366	1922	395 ¹
1899	328	1923	430 ¹
1900	332	1924	382 ¹
1901	347	1925	512
1902	396	1926	535
1903	407	1927	546
1904	395	1928	589
1905	416	1929	514
1906	424	1930	583
1907	389	1931	553
1908	398	1932	547
1909	454	1933	575
1910	458	1934	550
1911	440	1935	559

¹ Excluding the U.S.S.R.

TABLE II

AVERAGE ANNUAL QUANTITY AND FARM VALUE OF LEADING
CROPS IN THE UNITED STATES

	Maize		Wheat		Cotton.	
	Quantity	Value	Quantity.	Value	Quantity	Value
	Million Bushels	Million \$	Million Bushels	Million \$.	Million Bales.	Million \$.
1870-74	922	441	261	245	3,852	240
1875-79	1377	469	363	335	4,942	214
1880-84	1575	686	464	407	6,086	262
1885-89	1831	616	435	317	6,908	265
1890-94	1602	658	477	313	8,368	275
1895-99	2068	529	529	329	9,580	298
1900-04	2173	921	626	421	10,844	470
1905-09	2734	1341	693	566	11,835	582
1910-14	2752	1535	728	612	12,933	..
1915-19	2756	2901	834	1392	11,481	1366
1920-24	2763	1779	822	892	10,983	1138
1925-29	2671	1842	823	909	15,268	1214
1930-34	2253	1074	702	408	13,342	563

TABLE III

1. CONSUMPTION OF WHEAT IN QUINQUENNIAL AVERAGES

Years.	United Kingdom	United States	Germany	France.
	Thousand Cwts.	Bushels ¹	Thousand Cwts.	Thousand Cwts
1880-84	114,213	323,971,634	54,157	184,640
1885-89	116,220	322,202,792	56,632	176,376
1890-94	125,021	310,674,540	71,728	183,089
1895-99	127,824	349,947,222	86,187	184,544
1900-04	134,145	463,008,108	103,266	173,894
1905-09	112,400	560,571,380	111,565	181,146
1910-12	117,668	566,867,080	117,032	181,119
1920-24	131,390 ²	. ³	80,000	173,483
1925-29	132,200 ²	629,000,000	103,076	180,021
1930-34	155,300 ²	700,000,000	94,800	178,100

¹ These are Winchester bushels. The Winchester bushel = $\frac{3}{4}$ of the imperial bushel.

² Including Irish Free State.

³ No comparable figures available.

TABLE IV

2. CONSUMPTION OF RAW COTTON IN QUINQUENNIAL AVERAGES

Year	United Kingdom	United States	Germany	France
	Million Cwts.	Million Cwts.	Million Cwts.	Million Cwts.
1855-59	7.9	3.6	.. ¹	1.6
1860-64	6.5	1.8	1.0	1.4
1865-69	8.0	3.4	1.2	1.7
1870-74	10.7	5.0	2.1	1.5
1875-79	10.9	6.2	2.4	1.8
1880-84	12.9	8.3	2.9	2.0
1885-89	13.1	10.0	3.7	2.2
1890-94	14.2	11.7	4.8	3.0
1895-99	15.0	14.5	5.9	3.2
1900-04	14.3	18.2	6.8	3.6
1909-13	17.6	23.8	8.1	4.7
1914-18	15.7	31.3	.. ¹	5.5
1920-24	12.2	26.0	4.7	4.6
1925-29	12.7	29.7	6.2	5.3
1930-34	10.2	24.4	5.6	4.7

¹ Cannot be given

Note.—As regards the figures for France and Germany, no allowance has been made for the variations of spinners' stocks.

TABLE V

1. OUTPUT OF COAL IN QUINQUENNIAL AVERAGES

Years	United Kingdom	United States ¹	Germany	France.
	Million Tons.	Million Tons.	Million Tons.	Million Tons.
1855-59	66.1	12.4	.. ²	7.5 ³
1860-64	84.9	16.7	15.4	9.8 ³
1865-69	103.0	26.7	23.5	12.4 ³
1870-74	120.7	43.1	31.8	15.1 ³
1875-79	133.3	52.2	38.4	16.3
1880-84	156.4	88.7	51.3	19.3
1885-89	165.2	115.3	60.9	20.7
1890-94	180.3	153.3	72.0	25.4
1895-99	201.9	189.1	89.3	29.6
1900-04	226.8	281.0	110.7	31.8
1905-09	256.0	383.4	137.5	35.1
1910-14	269.9	462.7	166.0	36.9
1915-19	243.8	537.5	147.4 ⁴	23.1 ⁵
1920-24	244.5	549.4	117.5	33.6
1925-29	223.3	539.7	146.8	50.3
1930-34	220.1	380.7	118.2	48.1
1935-36	225.4	415.1	148.4 ⁶	45.0

¹ Includes a small quantity of lignite throughout the period² Cannot be given³ Includes a small quantity of lignite.⁴ Does not include production of surrendered districts after Oct. 1918⁵ Includes production of Lorraine in 1919.⁶ Including Saar.

TABLE VI

2. OUTPUT OF PIG-IRON IN QUINQUENNIAL AVERAGES

Years.	United Kingdom	United States.	Germany	France.
	Milhon Tons	Milhon Tons	Milhon Tons	Milhon Tons.
1855-59	3.5	0.7	.. ¹	0.9
1860-64	4.1	0.8	0.7	1.1
1865-69	4.9	1.3	1.1	1.2
1870-74	6.4	2.2	1.8	1.2
1875-79	6.4	2.2	2.0	1.4
1880-84	8.1	4.2	3.2	1.9
1885-89	7.7	6.0	4.0	1.6
1890-94	7.3	8.1	4.8	2.0
1895-99	8.6	10.6	6.7	2.3
1900-04	8.6	16.4	8.9	2.6
1905-09	9.7	23.2	12.0	3.4
1910-14	9.5	27.0	16.0	4.2
1915-19	8.7	35.5	11.1 ²	1.5 ³
1920-24	6.3	31.5	7.2	5.1
1925-29	6.0	38.7	11.4	9.4
1930-34	4.7	17.7	6.6	7.1
1935-36	7.0	26.2	13.9 ⁴	5.9

¹ Cannot be given.² Does not include production of surrendered districts after Oct. 1918.³ Includes production of Lorraine in 1919.⁴ Including Saar

TABLE VII

3. OUTPUT OF STEEL IN QUINQUENNIAL AVERAGES

Years.	United Kingdom.	United States	Germany.	France.
	Milhon Tons.	Milhon Tons.	Milhon Tons.	Milhon Tons
1855-59	.. ¹	..	.. ¹	0.02
1860-64	.. ¹	..	.. ¹	0.04
1865-69	0.2	0.3	0.2	0.06
1870-74	0.5	0.14	0.3	0.13
1875-79	0.9	0.6	0.4	0.3
1880-84	1.8	1.6	0.8	0.4
1885-89	3.0	2.8	1.1	0.5
1890-94	3.2	4.3	2.8	0.8
1895-99	4.2	7.6	5.1	1.3
1900-04	4.9	13.4	7.3	1.7
1905-09	6.0	21.0	11.1	2.6
1910-14	7.0	27.2	15.7	4.2
1915-19	8.9	39.7	13.75 ²	1.5 ³
1920-24	7.3	37.3	9.0	4.6
1925-29	7.7	49.3	14.1	8.5
1930-34	6.7	25.9	8.8	7.0
1935-36	10.8	41.0	17.4 ⁴	6.4

¹ Cannot be given.² Does not include production of surrendered districts after Oct. 1918³ Includes production of Lorraine in 1919⁴ Including Saar.

WORLD PRODUCTION OF PRIMARY COMMODITIES
(Average of 1925-29 = 100)

1925	.	96	1931	.	98
1926	.	96	1932	.	94
1927	.	99	1933	.	99
1928	.	103	1934	.	100
1929	.	106	1935	.	104
1930	.	102	1936	.	107

TABLE IX
INDICES OF PRODUCTION AND BUSINESS ACTIVITY IN GREAT BRITAIN
(1924=100)

	Board of Trade Index of Production.	<i>Economist</i> Index of Business Activity
1924—First quarter .	.	97
Second " . . .	.	100
Third " . . .	.	101
Fourth " . . .	.	101
1925—First " . . .	.	102
Second " . . .	..	100
Third " . . .	.	100
Fourth " . . .	.	103
1926—First " . . .	.	104
Second " . . .	.	88
Third " . . .	.	72
Fourth " . . .	.	95
1927—First " . . .	.	109
Second " . . .	.	110
Third " . . .	.	108
Fourth " . . .	.	107
1928—First " . . .	100	106
Second " . . .	104	107
Third " . . .	100	108
Fourth " . . .	108	108
1929—First " . . .	110	109
Second " . . .	112	111
Third " . . .	111	113
Fourth " . . .	114	112
1930—First " . . .	111	111
Second " . . .	103	107
Third " . . .	99	104
Fourth " . . .	99	102
1931—First " . . .	95	98
Second " . . .	92	98
Third " . . .	89	98
Fourth " . . .	97	99
1932—First " . . .	95	98
Second " . . .	94	96
Third " . . .	87	95
Fourth " . . .	95	95
1933—First " . . .	95	97
Second " . . .	97	99
Third " . . .	97	104
Fourth " . . .	105	106
1934—First " . . .	109	107
Second " . . .	108	106
Third " . . .	106	108
Fourth " . . .	115	108
1935—First " . . .	116	108
Second " . . .	115	111
Third " . . .	114	112
Fourth " . . .	125	115
1936—First " . . .	128	115
Second " . . .	128	118
Third " . . .	127	121
Fourth " . . .	137	122
1937—First " . . .	137	123
Second " . . .	139	125
Third " . . .	134	127
Fourth " . . .	141	126

APPENDIX E

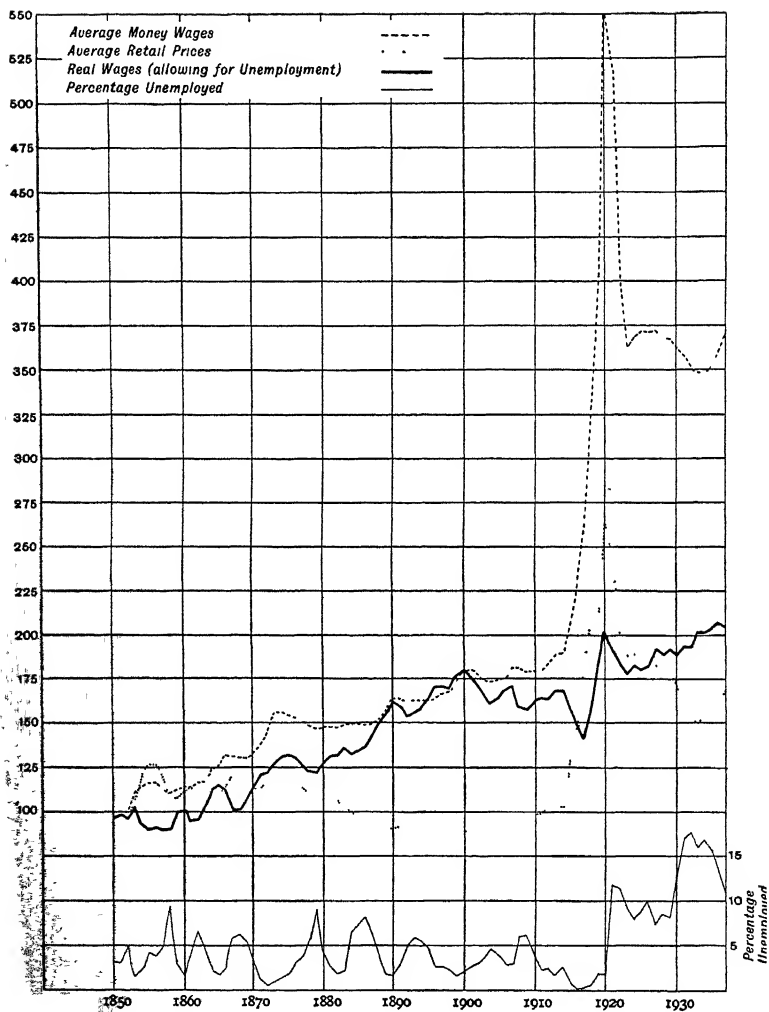
STATISTICS ILLUSTRATING CHANGES IN WAGES AND IN THE STANDARD OF LIVING

THE amount of information available relating to changes in wage rates in the first half of the nineteenth century is insufficient to form the basis of any but the most hazardous generalisations. From the middle of the century onwards, however, a considerable volume of statistical material is available and has been the subject of careful scrutiny by Professor Bowley and Mr. G. H. Wood. The earlier figures are naturally neither so full nor so authentic as those of later periods, and some margin of error must be allowed for. For reasons which are discussed in Chapter IX, questions of wage rates gained increased prominence in the years between 1900 and the outbreak of the war, and the amount of statistical material is correspondingly greater. From 1914 to the present date we have very full and detailed records of wage rates.

The task of converting this raw material into an index representative of the average income of the working-class is, however, not an easy one. In the earlier period detailed information is available for a small number of industries only, and it is doubtful how far these figures are applicable to other trades than those to which they refer, especially since unskilled labour is somewhat under-represented. In the post-war period, as is explained in Chapter XI, divergences in wages between different industries and grades of labour considerably diminish the usefulness of any general average. Even if it were possible to establish a perfect index of wage rates, further qualifications would be necessary before it could be used as a measure of the average earnings of the working population. In the first place, the movement of wage rates takes no account of the amount of short-time or overtime being worked; and in the second place, average earnings are affected by the varying incidence of unemployment. No practicable method has yet been devised for taking account of the former difficulty, but it is possible to make some allowance for unemployment, since we

have for the whole of the period covered by the wage statistics the figures first of the Trade Unions and later of the statutory Unemployment Insurance scheme relating to the percentage of the working population out of work. In an article in the *Statistical Journal* for 1909, Mr. G. H. Wood presented an estimate of the movement of real wages from 1850 to 1903. This involved an estimate of the movement of retail prices in that period. Mr. Wood assumed that in 1850 four-fifths of the wages of the working-class were spent on commodities other than housing accommodation, and that the remaining one-fifth rose steadily on account of the increase in rents. Whether this is the right allowance to make for rent is a matter for discussion, but his calculation gives some indication, at all events, of the variation of real wages. The index of wage rates was divided by the index of the cost of living to give an index of *real* wage rates. Allowance was made for unemployment by correcting the index of real wage rates in accordance with the unemployment percentage. Thus in 1850, which was the starting-point of the inquiry, when wages, the cost of living and real wages were all equated to 100, the unemployment percentage was 4.0, and the index of average real earnings was consequently entered at 96. In 1879 real wages had risen to 137, but the unemployment percentage had risen to 11.4; average real earnings are consequently estimated at 121, which is approximately 88.6 per cent of 137.

Mr. Wood's figures are given in Table I and represented graphically on the chart. The calculation has been continued in the same way for the years 1904 to 1919, although the wartime figures are very approximate. For the post-war years a similar calculation has been made, with two modifications. The first is that we have for these years the official index of the cost of living, which includes changes in rent. The second is that the existence of the unemployment insurance scheme makes it inaccurate to assume that unemployed persons have no income at all. The somewhat arbitrary assumption has been made that unemployment insurance benefit payments amount on the average to one-third the normal wages, and the index of real wages has consequently been diminished by only two-thirds of the unemployment percentage. The index of wage rates used for this period is that of the Ministry of Labour to 1924 and that of the London and Cambridge Economic Service thereafter.



To face page 273.

TABLE I

Year.	Average Money Wages 1850 = 100.	Average Retail Prices 1850 = 100	Percentage Unem- ployed	Real Wages :	
				Of those in Full Work 1850 = 100	Allowing for Unem- ployment.
1850	100 0	100.0	4.0 (?)	100	96
1851	100	97	3.9	102	98
1852	100	97	6.0	102	96
1853	110	106	1.7	105	103
1854	114	122	2.9	96	93
1855	116	126	5.4	95	90
1856	116	126	4.7	96	91
1857	112	119	6.0	96	90
1858	110	109	11.9	102	90
1859	112	107	3.8	104	100
1860	114	111	1.9	103	101
1861	114	114	5.2	100	95
1862	116	111	8.4	105	96
1863	117	107	6.0	109	103
1864	124	106	2.7	117	113
1865	126	107	2.1	117	115
1866	132	114	3.3	116	112
1867	131	121	7.4	109	101
1868	130	119	7.9	110	101
1869	130	113	6.7	115	107
1870	133	113	3.9	118	113
1871	138	113	1.6	121	120
1872	146	120	0.9	122	121
1873	155	122	1.2	128	127
1874	156	117	1.7	133	131
1875	154	113	2.4	135	132
1876	152	110	3.7	137	131
1877	151	113	4.7	133	127
1878	148	110	6.8	132	123
1879	146	103	11.4	137	121
1880	147	107	5.5	134	127
1881	147	105	3.5	136	131
1882	147	106	2.3	135	132
1883	149	102	2.6	139	136
1884	150	100	8.1	144	132
1885	149	96	9.3	148	134
1886	148	92	10.2	151	136
1887	149	89	7.6	155	143
1888	151	89	4.9	157	149
1889	156	91	2.1	159	155
1890	163	91	2.1	166	162
1891	163	92	3.5	164	159
1892	162	92	6.3	163	153
1893	162	89	7.5	167	155

TABLE I (continued)

Year.	Average Money Wages 1850=100.	Average Retail Prices 1850=100	Percentage Unem- ployed.	Real Wages :	
				Of those in Full Work 1850=100.	Allowing for Unem- ployment
1894	162	87	6.9	170	158
1895	162	84	5.8	174	163
1896	163	83	3.3	176	170
1897	166	86	3.3	176	170
1898	167	87	2.8	174	169
1899	172	86	2.0	180	176
1900	179	89	2.5	183	179
1901	179	90	3.3	181	175
1902	176	91	4.0	177	170
1903	174	92	4.7	172	164
1904	173	93	6.0	170	160
1905	174	92	5.0	172	163
1906	176	92	3.6	174	168
1907	182	95	3.7	176	170
1908	181	97	7.8	172	159
1909	179	97	7.7	170	157
1910	179½	98	4.7	169	161
1911	179	99	3.0	169	164
1912	184	103	3.2	168	163
1913	188½	103	2.1	172	169
1914	189½	102	3.3	174	169
1915	(204)	(127)	1.1	(161)	(159)
1916	(222)	(148)	0.4	(150)	(149)
1917	(260)	(183)	0.7	(142)	(141)
1918	(336)	(209)	0.8	(161)	(160)
1919	(403)	(214)	2.4	(189)	(184)
1920	550	269	2.4	205	202 ¹
1921	517	245	14.8	211	191 ¹
1922	398	198	14.3	201	184 ¹
1923	364	188	11.7	193	178 ¹
1924	369	189	10.3	195	182 ¹
1925	371½	190	11.3	195	180 ¹
1926	371	186	12.5	200	183 ¹
1927	372	182	9.7	204	192 ¹
1928	368	180	10.8	204	189 ¹
1929	367	178	10.4	206	192 ¹
1930	363	171	16.0	212	189 ¹
1931	358	158	21.3	226	194 ¹
1932	352	154	22.1	229	195 ¹
1933	347	149	19.9	233	202 ¹
1934	347	153	16.6	227	201 ¹
1935	351	155	15.3	227	203 ¹
1936	360	159	13.0	226	207 ¹
1937	371	168	10.8	221	205 ¹

¹ On the assumption that unemployment insurance benefit payments are on the average one-third the standard rate of wages.

Table II contains a summary by Professor Bowley of the course of money wages, prices, and real wages during the nineteenth century in the form of a tabular statement, from which the various periods of rapid or slow advance, or of retrogression, can be clearly picked out. It, moreover, makes it clear at a glance what part has been played by rising or falling money wages and rising and falling prices. The statement is taken, with the necessary additions to bring it up to date, from the article on "Wages" in the Supplement to Palgrave's *Dictionary of Political Economy*, where references to the chief sources of wage statistics are also given.

TABLE II

Periods.	Nominal Wages	Prices	Real Wages.
1790-1810	Rising fast	Rising very fast	Falling slowly
1810-1830	Falling	Falling fast	Rising slowly
1830-1852	Nearly stationary	Falling slowly	" "
1852-1870	Rising fast	Rising	Rising considerably
1870-1873	Rising very fast	Rising fast	Rising fast
1873-1879	Falling fast	Falling fast	Nearly stationary
1879-1887	Nearly stationary	Falling	Rising
1887-1892	Rising	Rising and falling	"
1892-1897	Nearly stationary	Falling	"
1897-1900	Rising fast	Rising	"
1900-1914	Stationary	"	Falling slowly
1914-1920	Rising rapidly	Rising rapidly	Rising rapidly
1920-1922	Falling very rapidly	Falling rapidly	Falling
1922-1929	Stationary	Falling	Rising
1929-1933	Falling very slowly	Falling rapidly	"
1934-1937	Rising	Rising	Stationary

The rise of real wages has been accompanied by an increase in the consumption of common necessities, and as many of such articles are entirely imported, and the national consumption, therefore, accurately known, it has been possible to calculate the *per capita* consumption for the country as a whole. The consumption of wheat and meat can also be estimated, and figures for these articles are included with imported articles in Table III. The figures in this table are mainly influenced by the consumption of

TABLE III
ANNUAL *PER CAPITA* CONSUMPTION OF COMMODITIES IN QUINQUENNIAL PERIODS

	1860-64.	1865-69.	1870-74.	1875-79.	1880-84.	1885-89.	1890-94.	1895-99.
Corn (bushels)	5·547	5·451	5·379	5·706	5·789	5·768	6·129	5·741
Meat (lbs.)	..	(100·45) (2 years)	108·38	111·47	109·52	110·22	121·30	129·88
Tea	2·79	3·51	4·02	4·56	4·71	5·00	5·40	5·80
Coffee	1·15	1·00	0·98	0·98	0·90	0·83	0·73	0·69
Cocoa	0·12	0·15	0·24	0·30	0·34	0·45	0·56	0·77
Sugar	35·66	41·95	49·89	62·37	69·23	72·82	78·05	84·52
Currants	3·75	4·09	4·38	4·40	4·30	4·23	4·80	4·86
Rice	5·76	6·58	9·89	10·79	13·26	9·39	8·59	7·89
Tobacco	1·24	1·34	1·38	1·46	1·43	1·47	1·62	1·77
Wine (galls.)	0·31	0·45	0·52	0·51	0·42	0·37	0·38	0·40
Spirits	0·89	0·98	1·13	1·22	1·05	0·94	1·01	1·03
Beer	..	..	..	..	(27·87) (4 years)	27·47	29·82	31·22

TABLE III (contd.)

ANNUAL PER CAPITA CONSUMPTION OF COMMODITIES IN QUINQUENNIAL PERIODS

	1900-4.	1905-9.	1910-13 (4 years).	1920-24 ¹ (4 years).	1925-29.	1930-34.	1935-36 (2 years).
Corn (bushels)	5·871	5·746	.. ²	5·965	6 100	.. ²	.. ²
Meat (lbs.)	129·52	125·36	129·6	.. ²	133·1 ³	.. ²	146·1 ⁴
Tea	6·06	6·17	6·49	8·55	8·84	.. ²	9·36
Coffee	0·71	0·66	0·64	0·76	0·76	0·85	0·75
Cocoa	1·14	1·21	1·27	2·40	2·82	2·86	3·58
Sugar	85·38	83·90	81·86	68·52	76·84	98·11	99·58
Currants	4·31	4·73	4·76	4·76	5·83	2·66	2·61
Rice	13·71	15·92	10·31	9·54	6·13	5·70	5·22
Tobacco	1·93	1·99	2·28	2·92	3·08	3·28	3·61
Wine (galls.)	0·37	0·27	0·26	0·30	0·34	0·29	0·32
Spirits	1·07	0·85	.. ²	0·39	0·29	0·24	0·23
Beer	29·61	27·14	.. ²	17·96	15·57	12·96	13·42

¹ 1923 is omitted as the statistics of that year are complicated by the establishment of the Irish Free State. The figures for 1924 and subsequent years refer to Great Britain and Northern Ireland only.

² Comparable figures not available.

³ 1924-28.

⁴ 1934-35

the working-classes, which thus confirms the conclusion arrived at from the statistics in Table I, that there has been a rise in the standard of life; for it is quite evident that the upper classes, who, after all, form a very small fraction of the population, do not increase their consumption of food as wealth increases. Money may be spent on expensive commodities, but there is no doubt that the consumption of tea, sugar, currants, rice, tobacco, etc., is mainly influenced by the prosperity or otherwise of the working classes. The marked drop in the consumption of spirits and beer is due to the drastic wartime increase in the duties levied on drink and also to the growing habit of temperance.

It is exceedingly difficult to give any precise statistics of the income of non-wage-earners, for they are all different and vary so much in time and place. The income-tax statistics give some indication of the total income received by persons earning taxable incomes, but it is not definitely known how many persons share it among them. Moreover, for the period from 1914 onwards the inquiry is made more difficult by the fact that reductions of the exemption limit and the general fall in the value of money brought many more incomes within the purview of the income-tax. Table IV gives some figures calculated by Professor Bowley and published by him in an article in the *Economic Journal* for 1904, showing estimates of the total amount of the national income accruing to income-tax payers over a series of years, together with an estimate of the national wages bill. The calculation only goes back to 1860, but it clearly brings out the enormous increase in profits (which formed the greater part of the receipts of income-tax payers) between 1860 and 1875. During these years the wages bill increased at a more moderate rate, for whereas in 1860 the wages bill was equal to the total receipts of income-tax payers, in 1875 the wages bill had risen to £465,000,000 while the income of taxpayers was £560,000,000. Between 1875 and 1895, the wages bill apparently began to catch up the income of taxpayers, the rate of increase during these twenty years being 25 per cent in the case of the wages bill and 18 per cent in the case of the income subject to tax.

For the more recent period some comparative figures are provided by Table V, which gives the estimates of the distribution of the national income made for 1911 by Dr. Bowley and for 1924 by Dr. Bowley and Sir Josiah (now Lord) Stamp. The fact that income subject to tax increased in this period more rapidly than wages

TABLE IV

WAGES BILL AND INCOME OF INCOME-TAX PAYERS (MILLION £)

	Wages Bill allowing for changes in Employ- ment.	Corrected totals of Income subject to Tax		Wages Bill allowing for changes in Employ- ment	Corrected totals of Income subject to Tax
1860	300	290	1881	455	575
1861	300	320	1882	470	590
1862	300	335	1883	470	585
1863	310	360	1884	450	580
1864	320	375	1885	440	580
1865	340	385	1886	440	580
1866	350	395	1887	455	595
1867	350	400	1888	500	615
1868	340	410	1889	530	640
1869	350	445	1890	550	640
1870	365	460	1891	555	635
1871	390	490	1892	545	625
1872	440	525	1893	545	630
1873	485	545	1894	560	645
1874	470	555	1895	580	660
1875	465	560	1896	595	680
1876	460	560	1897	605	715
1877	460	555	1898	650	735
1878	440	540	1899	675	765
1879	430	545	1900	710	790
1880	440	560	1901	705	800

TABLE V

DISTRIBUTION OF THE NATIONAL INCOME, 1911 AND 1924

	1911 (inc S. Ireland) (£ millions).	1924 (exc. S. Ireland) (£ millions)
Income subject to Income-Tax (i.e. above exemption limit of £160 in 1911 and £150 in 1924)	962	2218
Intermediate Incomes	314	267
Wages	802	1600
Other Incomes (Pensions, etc.) .	20	128
Gross Total	2098	4213
<i>Deduct—</i>		
Payments to foreigners . . . .	...	49
Allowance for Southern Ireland	76	..
Net Total	2022	4164

must not be taken as meaning that the proportion of the national income going to the working-class was lower in 1924 than in 1911, for many working-class incomes became subject to income-tax as a result of the rise in wages. For the later years, Mr. Coln Clark has made annual estimates both of the gross and net national income (gross national income includes sums put to the maintenance and depreciation of capital, net national income omits these). His estimates, which are taken from his book *National Income and Outlay* and from an article in the *Economic Journal* for June 1937, are shown in Table VI.

TABLE VI
NATIONAL INCOME, 1924-36

	Gross £ mn.	Net £ mn.		Gross £ mn.	Net £ mn.
1924	4376	4035	1931	4264	3889
1925	4710	4357	1932	4210	3844
1926	4526	4173	1933	4334	3962
1927	4719	4359	1934	4600	..
1928	4710	4339	1935	4902	..
1929	4765	4384	1936	5272	..
1930	4698	4318			

It will be noticed that Mr. Clark's estimate of the net national income in 1924, though different from that of Dr. Bowley and Lord Stamp, is not far removed from it. The later figures clearly show the drop in the depression and the subsequent recovery.

TABLE VII
SOCIAL SERVICES EXPENDITURE
(£ millions)

	1900-01.	1910-11.	1923-24	1931-32.	1935-36
Unemployment Insurance	..	..	48.0	122.8	99.0 ¹
Health Insurance	..	..	30.9	37.5	38.3
War Pensions	..	..	69.6	47.0	40.5
Other Pensions (Old Age, etc.)	..	6.3	24.0	78.4	88.4
Education	17.0	29.1	86.6	103.3	112.4
Working-class housing	0.4	0.7	16.6	40.2	48.2
Poor Relief	11.5	15.0	41.9	41.2	51.8
Miscellaneous (hospitals, etc.)	2.8	3.9	14.5	20.0	25.2
	31.7	55.1	332.1	490.4	503.8

¹ Unemployment insurance and assistance.

A further factor bearing upon the standard of living of the working-class is the sums provided by taxation for Social Services. Table VII shows the amounts spent on Social Services in the financial years 1900-01, 1910-11, 1923-24, 1931-32 and 1935-36. The very large increase since the pre-war period can be clearly seen. Table VIII shows the sources from which these sums were obtained in 1934-36 and the number of persons benefiting from them. Central and local taxation provided over 70 per cent of the total, while the remainder was provided by fees and contributions, some of which (*e.g.* for unemployment insurance) were raised from the workpeople themselves.

Table IX shows the increase in the population since 1801.

TABLE VIII

SOURCES OF SOCIAL SERVICES EXPENDITURE, 1935-36

	Receipts from			Total Receipts	Number of Persons benefiting directly. ¹
	Local Rates.	Exchequer.	Other Sources.		
	(£ mn.)	(£ mn.)	(£ mn.)	£ (£ mn.) †	(Millions)
Unemployment	..	68.7	44.0	112.7	12.6
Health Insurance	..	7.4	34.8	42.2	19.2
Pensions—					
Widows, etc. . .	.	14.0	11.5	25.5	2.1
Old Age . . .	..	43.8	..	43.8	1.9
War . . .	..	40.5	..	40.5	0.9
Education . . .	51.1	52.4	8.9	112.4	7.9
Housing . . .	3.9	15.9	28.4	48.2	.. ²
Poor Relief . . .	42.6	5.8	3.5	51.9	1.8
Health Services	22.0	0.3	2.8	25.1	.. ²
Total . . .	119.6	234.8	147.9	502.3 ³	..

¹ Many people benefit from more than one service and are therefore counted twice.

² Cannot be estimated.

³ Total expenditure was £503.8 millions (see Table VII).

TABLE IX

POPULATION OF THE UNITED KINGDOM AT DECENNIAL CENSUSES

Census Years	Total for United Kingdom.	England and Wales.	Scotland.	Ireland	Census Years
1801	..	8,892,536	1,608,420	.. ¹	1801
1811	..	10,164,256	1,805,864	.. ¹	1811
1821	20,893,584	12,000,236	2,091,521	6,801,827	1821
1831	24,028,584	13,896,797	2,364,386	7,767,401	1831
1841	26,709,456	15,914,148	2,620,184	8,175,124	1841
1851	27,368,736	17,927,609	2,888,742	6,552,385	1851
1861	28,927,485	20,066,224	3,062,294	5,798,967	1861
1871	31,484,661	22,712,266	3,360,018	5,412,377	1871
1881	34,884,848	25,974,439	3,735,573	5,174,836	1881
1891	37,732,922	29,002,525	4,025,647	4,704,750	1891
1901	41,458,721	32,527,843	4,472,103	4,458,775	1901
1911	45,216,741	36,075,269	4,759,521	4,381,951	1911
1921	47,123,196	37,886,699	4,882,497	4,354,000 ²	1921
1931	46,037,000 ³	39,948,000	4,843,000	1,246,000 ²	1931

¹ The census of Ireland in 1821 is the first which was made on such a basis as to afford a comparison with those of subsequent decades.

² Estimate.

³ Excluding the Irish Free State.

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INDEX

- Agricultural products, prices of, 93
- Animal products, consumption of, 268; prices of, 75, 76, 88, 93, 96, 108, 109, 112, 137, 150, 185, 197
- Artificial maintenance of prices, 196
- Bank deposits, 243, (1870-90), 85, 86; (1894-1913), 105; (1919), 143; (1921-23), 146; statistics of, 245, 246, 251
- Bank notes, *see* Currency and bank notes
- Bank of England, gold holdings (1844-1933), 247; gold reserves, 22, 37, 67, 69, 85, 86 *n.*, 105, 158; note issue, 60, 62
- Bank rate (1844-1933), 247
- Banks, *see* Joint-stock banks
- Barley, prices of, 75, 76, 88, 108, 109, 137, 138, 150, 185, 197
- Beer, consumption of, 268
- Bimetallism, 11, 97-101
- Board of Trade index numbers, 113, 114, 228, 230, 231
- Booms, *see* Trade booms
- Bowley, Professor A. L., 64, 78, 79, 96, 97, 113, 128, 263, 267, 269
- Business activity, index of, 262
- Butter, prices of, 75, 88, 137, 150, 185, 197
- Cassel, Professor Gustav, 47, 48
- China's absorption of gold, 240
- Coal, output of, 72, 76, 92, 109, 137, 260; prices of, 75, 88, 92, 108, 137, 150, 185, 187, 197, 199
- Cocoa, consumption of, 268
- Coffee, consumption of, 268, prices of, 75, 88, 91, 108, 137, 150, 185, 186, 190, 197, 198
- Companies Act of 1861, 71
- "Compensated dollar" plan, 204, 211
- Contracts drawn in terms of real values, 208
- Control of prices, 132-136
- Copper, prices of, 75, 88, 108, 111, 137, 150, 185, 187, 197; supply of, 92
- Corn Laws repeal, 75 *n.*
- Cost of living, *see* Living, cost of
- Cotton, consumption of, 260; prices of, 22, 65, 73, 75, 77, 88, 107, 108, 110, 137, 150, 185, 187, 197; production, 89, 108, 110, 259
- Credit currency and system, 23, 32, 34, 62, 70, 71, 85, 86, 105, 106, 123, 142, 143, 145
- Currants, consumption of, 268
- Currency, *see* Money
- Currency and bank notes, 22, 23, 62, 122, 146; statistics (1913-1933), 244
- Cyclical price movements, 21, 58
- Deflation, 43, 144, 151
- Depressions, *see* Trade depression
- Economist* index numbers, 227, 228, 230, 231, 262
- Egypt's absorption of gold, 240

Export trade and currency circulation, 87

Fisher, Professor Irving, 204

Flax, prices of, 75, 88, 108, 136, 137, 150, 185, 197

Flexibility of prices, 209

Flour, prices of, 75, 88, 108, 137, 150, 185, 197

Fluctuations, control of, *see* Stabilisation

Food, consumption of common articles of, 96, 267-269; prices, 228, 231, 232

Foreign exchanges, 44; their stability under the gold standard, 45, 51, 56; exchange fluctuations and the price-level, 46-50; exchange and price movements (1913 and 1920), 140; (1913 and 1922), 152; fixing the rate of exchange between the pound and the dollar, 161-164; disadvantages of fluctuating rates, 214; maintaining stability of, 214-218, 222

France, absorption of gold by, 55, 85, 86

France, Bank of, gold holdings of, 253

Free trade, 111; *see also* Tariffs

Germany, absorption of gold by, 83, 85, 86, 105; wholesale index numbers, 26, 167, 230-232

Gold, chart of world's gold reserves, 189, the world's gold production, 239-242; gold consumption since 1835, 240; demand for (1871-90), 83, 86; effects of an increase of, 2, 3, 6, 7, 35-38; effect of increased production on prices (1846-60), 26, 27, 67-71, 77; (1875-95), 94, 95; (1895-1914), 27, 103-106, 111, 112; effect of a dwindling

supply (1881-85), 84-86; decline in production, but high price-levels maintained (1915-1919), 158; regulating the long-period value of, 212; restricted use of, during and after the war period, 158-160, 168; gold coin currency, 53; of England (1913), 158; coinage in England, France and the United States (1848-56), 68; gold coin circulation in the United Kingdom (1844-1930), 244; gold holdings of the Bank of England (1844-1933), 247; gold coin, bullion, etc., in U.S.A. (1880-1932), 248, 249; gold stock of U.S.A. (1914-32), 250; gold holdings of the Federal Reserve banks (1920-33), 252; gold holdings of the Bank of France and the Reichsbank, 253; new imports and exports of gold coin and bullion (1858-1932), 254, 255

Gold and Silver Commission, 11

Gold bullion standard, 169

Gold certificates, 83 *n.*

Gold exchange standard, 169, '193

"Gold-inflation", 160

Gold-mining, 236-238

Gold standard, 2, 3, 6, 7, 40, 41, 138; and economic recovery, 217; and exchange stability, 45, 51, 56; difference between pre-war and post-war, 28, 29, 53-57; its restoration after the war, 156, 160-169; suspended by Great Britain and the United States, 192; why it broke down in the post-war period, 170-175, 193

Hemp, prices of, 75, 88, 108, 137, 150, 185, 197

- Hides, prices of, 75, 88, 108, 185, 197
- Hours of labour, 116, 131, 149, 183, 184
- Income, national, *see* National income
- Incomes, analysis of, according to effect of rise of prices, 14-16; economic effect of price changes on, 9-12; income of income-tax payers (1860-1901), 269, 270; "real income" of goods and services, 5-7
- Index numbers—
Board of Trade, 113, 114, 228, 230, 231
cost of living, 18-20, 125, 129, 141, 155, 157, 182, 232
Economist, 227, 228, 230, 231, 233
Economist index of business activity, 262
Germany (Schmidt), 26, 230-232
Jevons, 60, 65, 227, 228
Labour Department retail prices, 113
method of, 17, 225
of prices since 1800, 229
retail prices, 18-20, 113, 232
Sauerbeck, 26, 227, 228
food prices, 113, 230, 231
raw materials, 230, 231
Statist, 227
U.S. America (Labour Bureau), 26, 156, 164, 230-232
wholesale prices, 17-29, 111, 118-120, 125, 126, 140, 141, 145, 155-158, 163; foreign, 140, 152, 153; tabulated (1821-1933), 25
Wood's average money wages, 263-266
Wood's real wages, 95, 264-266
- Wood's retail prices, 232, 265, 266
- India, absorption of gold by, 84, 86, 104, 240
- Indian products, 90
- Indigo, prices of, 75, 77, 88, 108, 137, 150
- Inflation, 22, 43, 50-53, 121-124, 151, 166, 167; cessation of, 142
- Interest rates and prices, 87
- Iron, output of, 72, 76, 91, 110; prices of, 22, 65, 75, 88, 91, 108, 137, 150, 185, 197, 199
- Jevons, W. S., 203; index numbers, 60, 65, 227, 228
- Joint-stock banks, 61, 70, 85, 86, 245
- Joint-stock companies, 71
- Jute, prices of, 75, 88, 108, 137, 150, 185, 197
- Kitchin, Joseph, 238-240
- Kursell, H. A., 238
- Labour market conditions (1821-1851), 64
- Lead, prices of, 75, 88, 92, 108, 137, 150, 185, 187
- Leather, prices of, 75, 88, 108, 137, 150, 185, 197
- Lexis, Professor, 237
- Linseed, prices of, 75, 88, 108, 185, 197
- Living, cost of, 18-20, 125, 129, 141, 145, 146, 155, 157, 181, 182, 195, 232
- Living, standard of, 79, 96, 129, 131, 148, 183, 194, 202, 269; statistics illustrating changes in, 263-272
- Loans, French and American, 174, 175, 188
- Maize, prices of, 75, 88, 108, 185, 197; production of, 89, 259

- Manufacturing industries, 93
 Marshall, Dr. Alfred, 5 *n.*, 11, 12, 215
 Meat, *see* Animal products
 Money, effect on price changes of the currency medium and currency circulation, 30-37; inconvertible currencies and prices, 40-59; currency expansion and price rises, 42-44, 119, 121-125; "managed currency", 213-217; relation between goods and currency, 73; monetary conditions (1810-50), 61, 62; (1850-74), 68-71, 77; (1874-96), 83-87; (1913-19), 121-124, 126, 127; (1919-20), 142-145; (1920-1923), 146; (1925-29), 176; monetary statistics, 243-255; monetary theory and prices, 28-39; variations in purchasing power of, 2, 3, 7-9, 28, 36; *see also* Bimetallism; Gold; Gold standard; Inflation
 Monopolists and rising prices, 112
 Napoleonic wars, prices during, 20, 118
 National income, 5-7, 12; (1926-1933), 271; distribution of (1911 and 1924), 270; influence of prices on, 202
 Nitrate, prices of, 75, 88, 108
 Oats, prices of, 65, 75, 76, 88, 108, 109, 137, 150, 185, 197
 Oil seeds, prices of, 137, 138, 150
 Oils, prices of, 65, 75, 88, 108, 137, 150, 185
 Petrol and petroleum, prices of, 88, 89, 108, 137, 150, 185, 187, 197, 199
 Pig-iron, 91; output of, 261; *see also* Iron, prices of
 Population (1821-51), 64; (1851-1871), 78; (1801-1931), 273
 Potatoes, prices of, 75, 88, 108, 109, 137, 150, 185, 186, 197
 Price changes, analysis of—
 (1820-50), 65
 (1846-50 and 1871-75), 75
 (1871-75 and 1894-98), 88
 (1894-98 and 1910-14), 108
 (1914-20), 137
 (1920-22), 150
 (1922-28), 185
 (1929-33), 197
 movements of prices (1920-23), 145
 movements of prices and foreign exchanges (1913-20), 140; (1913 and 1922), 151, 152
 retail prices, 18-20, 113, 234, 265, 266
 wholesale prices, 17-29, 111, 118-120, 125, 126, 140, 141, 145, 152, 153, 155-158, 163, 233, 234; tabulated (1821-1933), 25
 Production, falling prices and, 11, 12, 16, 34, 35; rising prices and, 13; increase in (1820-50), 63, 66; (1860-74), 69, 71-73, 77, 79; (1870-95), 88, 94; stimulated by increased gold production, 106; statistics, 257-262
 Profits, 12-14, 79, 97, 117, 269
 Purchasing power of money, variations in, 2, 3, 7-9, 28, 36
 Purchasing power parity, 47-49, 161
 Raw materials, prices of, 228, 230-232
 Reichsbank, gold holdings of, 253
 Rents, 19, 264
 Reparations, 55, 56, 173, 188, 191, 192, 208
 Retail prices, *see* Price changes

- Rice, consumption of, 268; prices of, 75, 88, 108, 137, 185, 197
 Rigidity of prices, 209
 Rubber, prices of, 136, 137, 150, 151, 184, 185, 190, 197, 199
 Sauerbeck's index numbers, 26, 113, 227, 228, 230, 231
 Silk, prices of, 22, 75, 88, 108, 137, 150, 185, 187, 197
 Silver currency, 98-101
 Social services expenditure, 271, 272
 Stabilisation of prices, 134, 203-218
Statist index numbers, 227
 Steel, output of, 91, 110, 261; prices of, 137, 150, 185, 197, 199
 Sugar, consumption of, 268; prices of, 22, 75, 88, 89, 96, 108, 112, 137, 150, 184, 185, 190, 197
 Tabular standard of value, 203, 207, 208, 210
 Tallow, prices of, 75, 88, 108, 137, 150, 185
 Tariffs, 51 *n.*, 71, 111, 172, 188, 191, 193, 219
 Tea, consumption of, 268; prices of, 75, 88, 90, 96, 108, 112, 137, 150, 197, 199
 Timber, prices of, 65, 75, 88, 108, 137, 150, 185, 197
 Tin, output of, 92, 110; prices of, 75, 77, 88, 92, 108, 110, 137, 150, 185, 187, 197, 198
 Tobacco, consumption of, 268
 Tooke and Newmarch, 70, 77
 Trade booms (1825), 21-24; (1870-1874), 73, 76; (1919-20), 141-144; volume of currency and, 34
 Trade cycles, 21, 58, 103, 118, 214
 Trade depression (1874-96), 11, 12, 81, 82; (1929-1934), 190-194
 Trade diminution and falling prices, 32
 Trade expansion and rising prices, 13, 14, 23, *see also* Production
 Trade unions, 97
 Treasury loans, 42
 Unemployment (1858), 120; (1915-21), 120, 141; (1921-24), 147; (1929-33), 195; amongst insured persons (1922-29), 178; in different industries (1925-1929), 177
 United States, absorption of gold by, 55, 83-86, 104, 112 *n.*, 139, 159, 160, 243; American influence on prices, 94, 110, 112, 221; remains on the gold standard, 138; tariffs, 111, various classes of money in (1880-1932), 248, 249; wholesale price index number, 26, 156, 163, 164, 230-232
 Wages, changes in, (1810-50), 64; (1852-73), 78, 79; Wood's statistics of real wages and average money wages (1850-1933), 95, 264-266; Bowley's statement of nominal wages, prices, and real wages (1790-1933), 267, difficulty of compiling an index of, 263; rates of pay in various trades and increases (1894-1913), 114-116; increases of wage rates (1914-1925), 179-181; compared with cost of living (1914-20), 129; (1920-23), 145, 157; (1922-29), 181, 182; (1929-33), 194-196; begin to decline (1920), 141; continue to fall (1922), 155; frequently lag behind prices, 10, 13-16, 115, 127, 128; methods by which changes in rates of wages were arranged,

Wages—continued

- | | |
|---|---|
| 130, 148, 149; statistics illustrating changes in, 263-272; wages bill (1860-1901, and 1911 and 1924), 269, 270
War Debts payments, 55, 56, 173, 188, 192
War raises prices, 41, 118-125
Wheat, consumption of, 75 <i>n.</i> , 259, 268; prices of, 65, 66, 74, 75, 76, 88, 90, 96, 107-109, 112, 133, 137, 150, 185, 197, 198; annual average gazette price | (1801-1933), 226; production of, 89, 108, 258, 259
Wholesale prices, <i>see</i> Price changes
Wine and spirits, consumption of, 268
Wood, G. H., 19, 95, 232, 263, 264
Wool, prices of, 75, 88, 108, 137, 138, 150, 185, 197
Working-classes and price changes, 10-13, 15, 63-66, 79, 115, 127, 202; <i>see also</i> Living, standard of |
|---|---|

THE END